PHILIPPINE HOME ECONOMICS BAKING MANUAL

Revised Edition - April 1971

A reference of information, recipes and activities in Baking adapted for use in the Philippines

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Wheat Associates, U.S.A.

Manila

THIS MANUAL IS GIVEN TO YOU FREE

WITH THE COMPLIMENTS OF

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ACKNOWLEDGMENT

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We sincerely hope the text and materials included in the manual will meet the needs of all concerned and help toward improving baking skills of food graduates in the Philippines.

Sincerely,

Consuelo San Andres, Nutritionist

Arturo Palmez, Baking Technician

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H I S T O R Y

In early time, man hunted for food. Then he discovered the grains and learned that they can be cultivated. So he stopped hunting and planted his food along with his fellow men. That's when civilization started.

At first, he ate the grain seeds raw. Then he learned to grind the seeds between stones to make flour.

More than 8,000 years ago, Swiss lake dwellers added water to flour and a dough was made. They cooked the mixture on heated stones and it came out as flat bread, hard on the outside and soft on the inside. This was the first bread.

The first leavened bread came by accident. It is written that in the Royal Egyptian household a baker set aside a dough for the King's breakfast and forgot to bake it. It soured and expanded the next day. The frightened baker kneaded the dough and then baked it fast on his hot stone. The bread came out bigger and fluffier. The baker served it to the Royal household and they liked it and he kept his job.

It was in the 17th century, when the microscope was discovered, that scientists found out what saved the Egyptian baker's job. The bread was a mixture of water, grain meal and sugar. When the dough was put aside, wild yeasts in the air settled on it. The yeasts combined with starch and sugar causing fermentation. Air bubbles formed and were trapped in the dough making it puff. When the frightened baker kneaded the dough, gluten strands developed. The dough became elastic and held gasses better. Then the mixture was heated on hot stones setting the bread structure. The first leavened bread was baked.

For centuries, bread was baked on flat stones. Then the "Bread Chamber" was found to produce better bread. It was a heavy earthen jar in old Egypt, set on hot coals with a partition near the base for the fire box and the upper part for bread baking. It was open at the top, similar to the "bibingkahan." Crude as it was, it produced a loaf of bread far superior to the flat stone product.

The "hourglass" was the first mill developed in Greece to grind larger quantities of flour. The mill had a bin or hopper into which the grain was poured. Below this hopper were two stones which continually moved against each other, grinding the grain as it fell. Men and animals powered the mill.

The "quern mill" was a hand-operated machine using the same principle as the "hourglass." It was a small mill designed for home use in Egypt.

The Romans adopted the Greek flour mill but used a different source of power -- water. They fashioned a wheel to which were attached small paddles. The water pushed against the paddles turning the wheel. An axle extending to a grinding stone activated the mill. Aside from man, animal, and water power, wind power was also harnessed to grind grains.

Today, massive steel rollers run by electricity grind the grains to produce quantities of flour far beyond the vision of the first men who made it. Although modern milling is highly technical, basically it remains what it was in the beginning -- grinding and sifting, grinding and sifting until the proper quality flours are produced.

From the crude milling stones, we come to the modern, complex mill to make flour. Flour processed from wheat in a modern mill or foods made from flour in today's bakery are probably as clean and as wholesome as any product offered the consumer. They represent the culmination of centuries of technological progress.

In the Philippines, we are not behind in the milling industry. We have been milling flour for the past ten years. We have seven modern flour mills that produce the many varieties of flour in the market. The Philippine mills are among the newest and most modern in the world.

Bakeries are found in almost every section of the country. We have roughly 6,500 bakeries throughout the islands which are the main users of flour. The baking business is a booming occupation. Bakeries employ hundreds of bakers. Home Economics and nutrition graduates who prefer to stay at home to tend to the family open bakeshops or catering services offering baked goods like specialty breads, cakes and cookies.

The Bureau of Public Schools encourages baking as a vocation for students. There are 13 pilot school bakeries in the Philippines and 139 independent bakeries assisted by the school officials to train girls and boys for a lifelong job after school. The Philippine College of Arts and Trade Bakers School in Manila, offers baking courses continuously the whole year round.

This manual is put out as a reference for the Home Economics classes of the Philippine schools. Its aim is to give the Home Economics teacher varied laboratory activities that she can adapt to her teaching. The homemaker can also profit from this manual in developing skills in the production of better baked goods.

We hope we will meet your needs and you will enjoy using the manual.

WHEAT ASSOCIATES, U.S.A.

THE LABORATORY

One of the primary concerns of the laboratory teacher is to teach students good habits of working with foods. The succeeding text offers pointers for healthful laboratory procedures.

Keep Sanitation High in the Laboratory

Sanitation means keeping things clean. This means it is important to:

- keep oneself clean
- keep foods clean
- keep equipment clean
- keep the laboratory clean

Keeping Oneself Clean

1. Always wash your hands with soap and water before starting work, after wiping spilled foods or sweeping up or after each visit to the locker room, after sneezing etc.
2. Always wear clean fresh aprons and change them whenever they get dirty.
3. Keep finger nails short and clean.
4. Make it a habit to start the day with a bath or shower and change into fresh clothes everyday.
5. Comb or brush hair neatly in place.
6. Do not wear costume jewelry, spangled hair net or wrist watch in the laboratory.
7. Wear a hair net, cap or hat which covers the hair and prevents it from falling.

Keeping the Food Clean

1. Do not handle foods and ingredients when hands are cut or infected.
2. Do not work around products or ingredients when ill.
3. Do not sneeze or cough on products or any ingredient and equipment.

4. Keep perishable foods and food supplies either very cold or very hot.

5. Refrigerate foods properly. Properly refrigerated foods are cleaner and safer.

6. Do not return materials that have dropped to the floor or which touched an unclean surface to the product.

7. Keep hand contact to ingredients to the minimum.

8. Open cartons on three sides with a box knife, leaving one side to serve as a hinge over to protect partial content of the box.

9. Do not store food supplies and equipment under possible points of contamination.

10. Check pans and ingredients for any foreign materials during processing.

11. Fresh produce should always be washed before use.

12. Keep all ingredient bins covered except when transfering ingredients.

13. Keep partially used bags of ingredients folded shut.

14. Use only easily cleanable containers for ingredients.

15. Brush bags and wipe off dust from cans before opening.

16. Do not dump fresh vegetables on top of old ones. Use ingredients in proper rotation.

17. Keep all clean ingredient containers off the floor, covered and upside down.

18. Clean ingredient containers whenever they get empty or at least once in every three weeks.

How to Keep Foods in the Refrigerator

1. Pack food loosely to allow air to circulate.

2. Store in shallow pans to cool interior as well as exterior of food evenly.

3. Cover food to protect from drippings, odor and from drying out.

4. Throw away food that is not going to be used. This prevents over crowding and increase air circulation in the refrigerator.

5. Wash refrigerator frequently to keep clean and prevent dirt and bacteria from accumulating.

6. Defrost before 1/4" frost accumulates. Frost on pipes cut down cooling process.

7. Open refrigerator door only when necessary. Open doors let warm air in which raises the temperature.

8. Keep a daily check on temperature to know that it is correct.

Keeping The Equipment Clean

1. Wash pots and pans immediately after use. If equipment is cleaned immediately, it will take less time and the job is easier.

2. Do not wipe equipment with dirty rags. Air dry them whenever possible. Remember, equipment dries quickly when rinsed with hot water.

3. Do not carry cleaned equipment in contact with your dress or clothing.

4. Store utensils dry, clean and in good condition.

5. Keep implements such as spatulas, beaters and whips clean and off the floor.

6. Set pans and pan covers upside down when storing them.

7. Keep rolls of wrapping paper and packaging materials off the floor.

8. Handle bowls, glasswares and cups properly. Do not touch the rims of glasses and cups and the inside of bowls, plates and saucers.

9. Keep your hands off the tines of forks, blades of knives, the bowls of spoons.

How to Wash Pots and Pans Properly

1. Soak used pots and pans in water. Hot water will help soften grease. Cold water helps soften adhering cereal foods.
2. Scrub with a clean fiber brush or use a wire brush to remove burned food. Do not use steel wool. It breaks into small particles and may cling to the pan.
3. Half fill a basin with water and then scrub each thoroughly with a bristle brush and water-detergent solution. Scrub the inside and outside of the pan well.
4. Rinse pans in clean water and then in hot water with a temperature of about 110°F to 140°F to sanitize.
5. Pans should dry up instantly after rinsing with hot water.
6. Store pans upside down in clean shelves or racks.

How to Wash Dishes Properly

1. Prepare soiled dishes for washing. Separate glasses, flatwares, china and silver.
2. Pre-flush to remove soft foods. This removes the bulk of food and grease that make cleaning difficult.
3. Prepare a basin of water with detergent and scrub dishes in it using a fiber brush or sponge to remove caked foods.
4. Work from cleanest to dirtiest wares - glasses, silvers, dishes etc. This will prevent messy washing solutions.
5. Scrub thoroughly inside and outside and change washing solution if needed for a thoroughly scrubbed ware.
6. Rinse well in water then sanitize with hot water (110°F to 140°F).

How to Clean Ranges

1. Wait until range is cool.
2. Remove burned food particles by scraping with a blunt scraper.
3. Wash range daily. Do not allow grease to collect on range.
4. Soak (cooled) top grids in water to which a detergent has been added. Use a stiff bristle brush or blunt scraper to remove caked-on materials.

5. Crates and burners from gas range should be boiled in a detergent solution.
6. Clogged burners from gas stove should be opened with a stiff wire.
7. Clean top plates from gas range (cooled) by scouring in pot sink with an alkaline type of detergent.
8. For electric ranges, remove grease films with the use of an alkaline detergent and warm water. Be sure water does not get into electrical elements.
9. Rinse with clean water and dry with clean cloth.
10. Wipe surface made of iron with cloth treated with cooking oil to prevent rusting.

How to Clean the Refrigerator

1. Once a week, defrost refrigerator. Remove from electrical connections and take out all foods in the shelves.
2. Throw away foods that are unusable. Left over foods should be used up within 2 days unless the food has been quick-frozen.
3. Thoroughly wash outside and inside walls and shelves with detergent and warm water solution.
4. Rinse with clean water then wipe with a clean cloth to dry. Do not use cleaning powders that will scratch the finish of the refrigerator. Neither should ammonia and scouring pads be used.

How to Clean the Can Opener

1. Clean can opener once a day if used daily.
2. Remove the shank from the base and scrub in hot detergent water. Clean with a wire brush if necessary.
3. Rinse in clean water then rinse in hot water.
4. Dry thoroughly to prevent rust.
5. Inspect the cutting blade of the can opener before storing to make sure it is sharp and not nicked.

How to Clean the Mixing Machine

1. Wash bowl and beater after each use.
2. Dry beater and bowl with clean cloth before storage.
3. Clean beater shaft and body with warm water and detergent. Dry thoroughly and store.

How to Clean the Vegetable Peeler

1. Clean after each use.
2. Flush the inside of the peeler with water to remove all parings.
3. Clean thoroughly with sponge and detergent using a bristle brush.
4. Dry well before storing.

How to Clean the Switched Type Oven

1. Wait until the oven is cool.
2. The surface should be washed with warm water and detergent aided by a bristle brush.
3. Remove racks and shelves and wash them in the sink scrubbing each thoroughly to remove dirt.
4. Clean inside of the oven by scraping with a blunt knife or wire brush any burnt food particle.
5. Wipe off the heat control.

Keeping the Laboratory Clean

1. Do not chew, eat, smoke or expectorate in the laboratory.
2. Do not comb hair or make up yourself in the laboratory.
3. Always return tools and implements to their proper places.
4. Keep cabinet doors closed to prevent accidents and rodents from entering the cabinet.
5. Keep on hand a regular sized notebook for notes and diagrams.
6. Keep personal things out of the working area.
7. Do not lean or sit on equipment and work tables.
8. Keep the dish washing and storage areas clean.
9. After dishes, pans etc. are washed, scrub sides of the sink, the drain boards and tables with water to which a detergent and sanitizer has been added.
10. Do not stand dish racks on the floor.
11. Floors should be swept after each laboratory work. Keep foods, papers and clutters off the floor.
12. Mop floors once a day.

13. Provide waste containers in convenient places.

14. Leave the room clean for the next user.

Storage facilities for cleaning tools may be racks, cabinets, or shelves. They must be placed strategically in the laboratory so that the necessary cleaning tools for one area are available in that area readily. It is preferable that the cleaning tools and racks for the students be different from those of the janitors, to have the tools available and neatly placed when not in use.

Cooperation of the students is the final step in keeping the laboratory clean and neat. It should actually come first. It is basic that the simpliest way to maintain cleanliness is to prevent the formation of dirt. Any flour, dough or materials which spill on the floor becomes dirt. It means loss of materials and messy floors. If this is borne in mind by the students, they should operate with a minimum of spilling and clutter. They will pick up after themselves. They will sweep dust from the immediate areas subject to foot traffic before it is tracked about in the laboratory. When students become conscious of this, their contribution toward keeping high sanitation standards in the laboratory is most significant. They not only will lessen the work of the janitors but also improve their working habits. A neat, orderly operation is possible.

PORTABLE OVEN IDEAS

The oven sketches in this manual are recommended for use to the many baking enthusiasts who can not perform the art in their homes and laboratories because of the prohibitive cost of ovens. They are home made portable types of tin materials that can easily be devised by any blacksmith or welding shop in the country. The fourth type of oven is commercially available from glassware stores and appliance centers in many towns and cities.

The Kerosene Can Oven

The easiest to make and the most popular type of home made oven is the kerosene can oven. It doubles as a demonstration kit for demonstrators.

The oven is made by opening the top side of an empty kerosene can, and providing slits at the rear side to even pressure when it is heated. The cover is made by welding a square piece of tin sheet with four 1 ½ to 2 inches wide strips of the material to make a square cover that fits the mouth of the can snugly. This will prevent escape of heat during baking. See illustrations.

The oven rack is a detachable iron stand or "parilya". The rack serves to elevate the pan from the heated side of the oven so that the product is not directly in contact with heat. This allows air to circulate around the food freely during baking.

The Charcoal Oven*

The oven is made of tin materials. Heating is done from the top side of the oven using charcoal, wood shavings, rice bran, etc. The oven may also be heated at the bottom side when a very hot oven is needed. Temperature is controlled through use of fuel.

The rack is made of tin materials like the body of the oven. Adjustments are made to suit heating need through a row of holes on the front and back side that scales different heights of rack positions. The holes also act as pressure let-offs during baking.

*May be seen at the native kitchen of the Philippine Women's University, Taft Avenue, Manila

Design charcoal ovens to suit the size of your baking equipment such as the baking sheets, the height of the baking pans, etc. Make your own size specifications to the welders.

The Tin Oven*

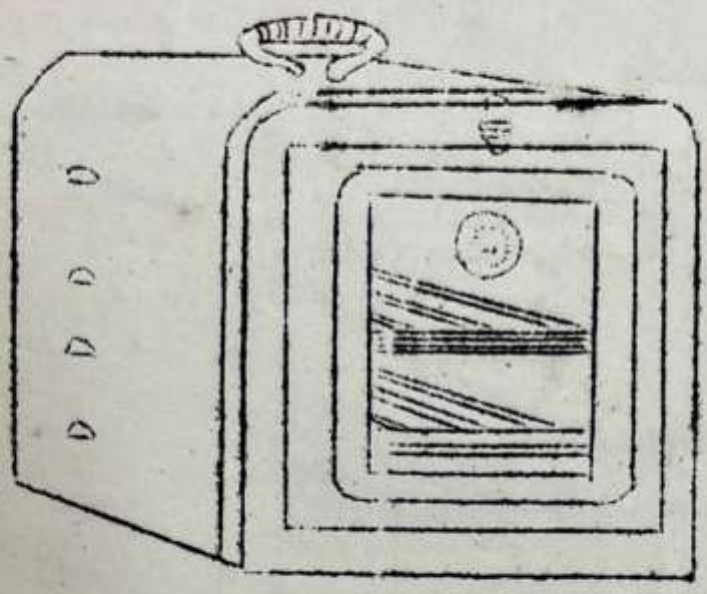
This type of oven follows the same principles as the kerosene and charcoal oven except perhaps in design. Heat is provided at the bottom side. It is advisable to use this oven in an enclosed area, away from strong winds and drafts that affect the temperature and keep heating slow. Firewood, gas, electricity, charcoal, etc., may be used to heat the oven.

The Portable Glass Front Oven

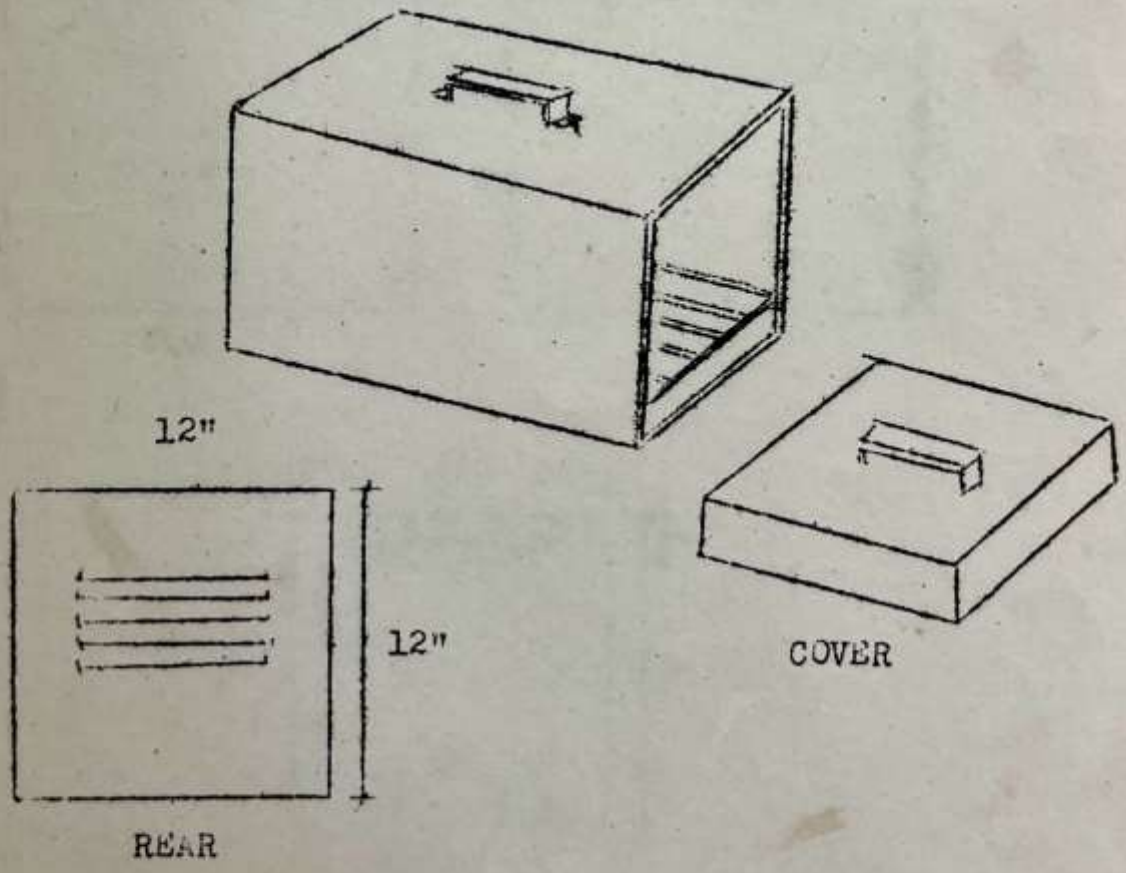
This oven is sold in most glassware, hardware and appliance centers in many towns and cities in the country. It is a more sophisticated type and temperature can be gauged through a thermostat at the door of the oven. One can see the food as it bakes through the peeping glass door.

Heating is done by simply putting the oven on top of a lighted electric stove, gas range, etc., while the ingredients are mixing. Be sure the door cover is secure and snug to prevent heat from escaping.

*May be seen at the native kitchen of the Philippine Women's University, Taft Ave., Manila

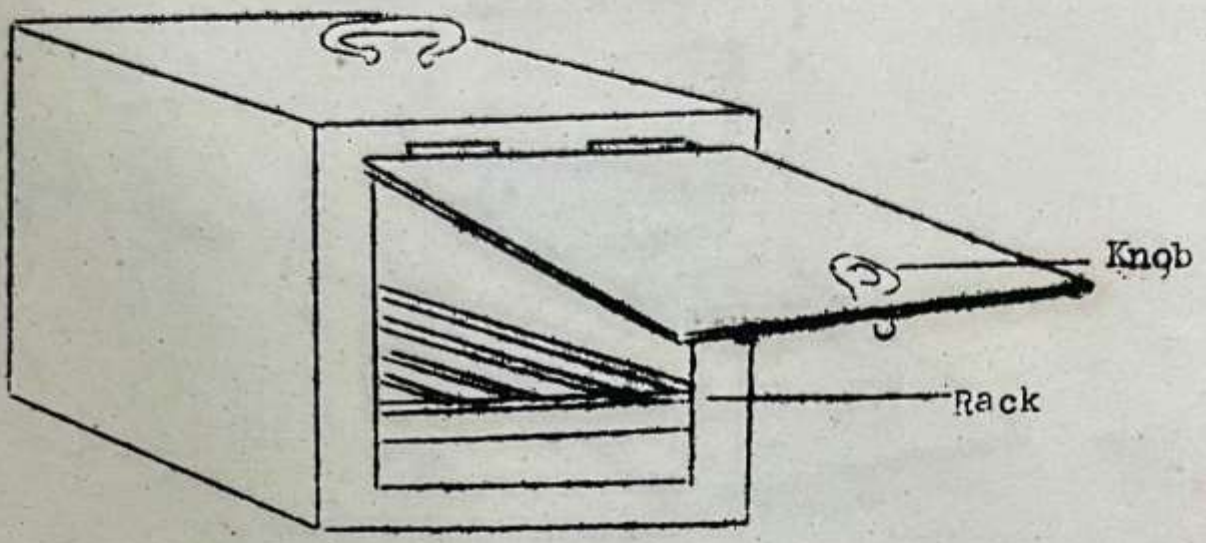


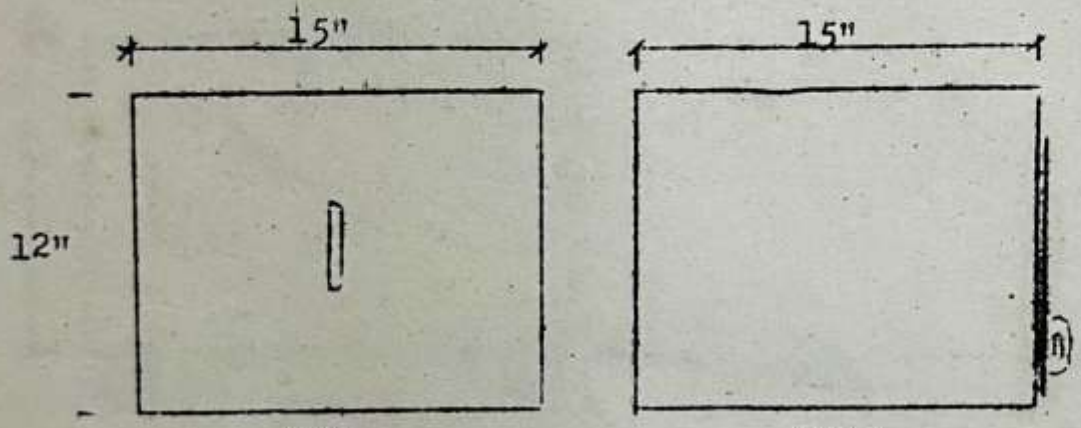
PORTABLE OVEN

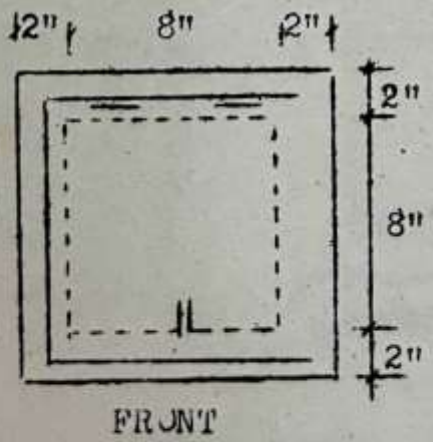


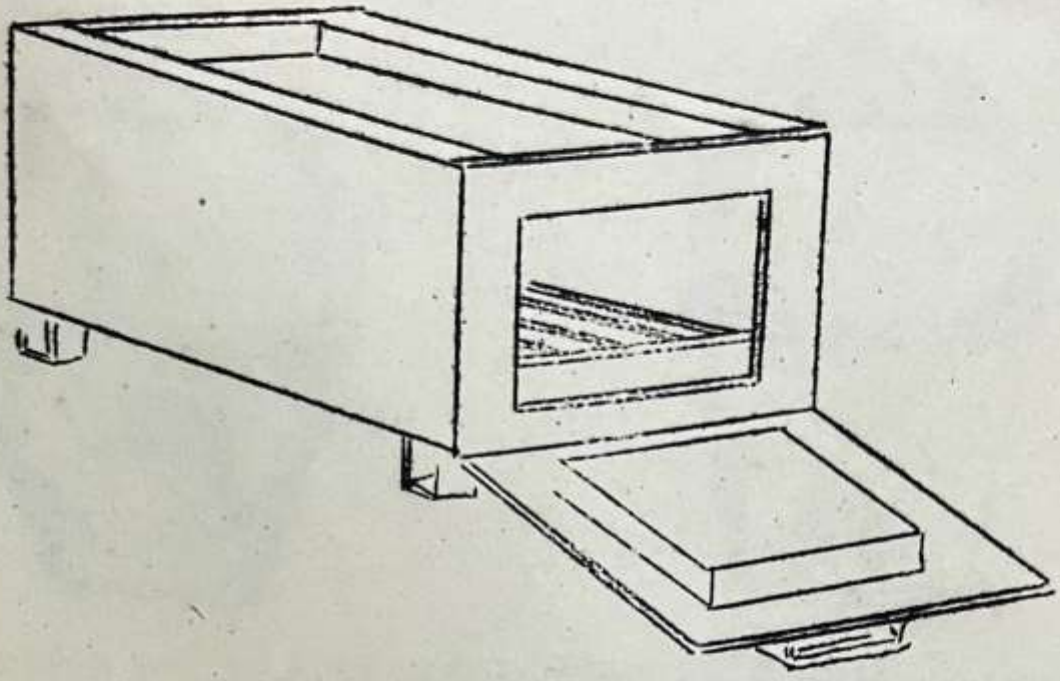
KEROSENE CAN OVEN

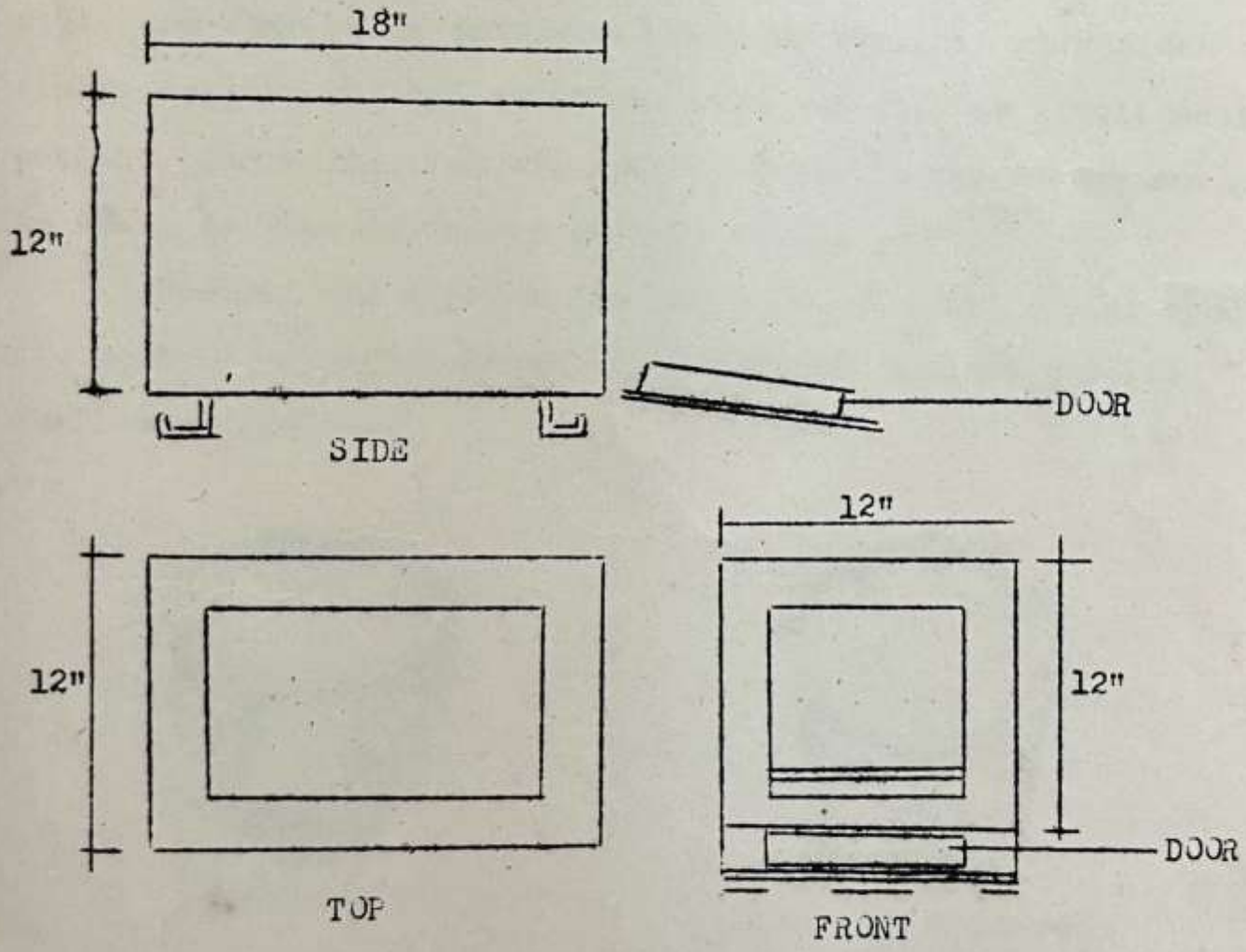
TIN OVEN











CHARCOAL OVEN

The Orosa Oven

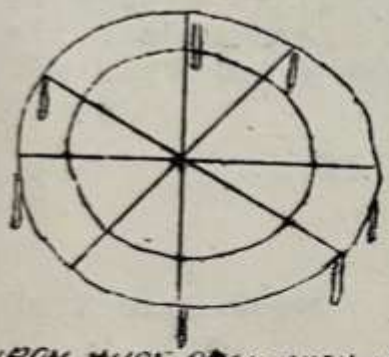
Notice how it sits above, first on a native calan or stove and then on an imitation Japanese brazier. Its sides fit snugly against the lip of either stove so that as little heat as possible emanating from the coals underneath may escape and go to waste between stove lip and pot sides.

The pot and stove being both made of clay, a poor conductor, heat is concentrated and thrown upward against the wide shallow pot bottom.

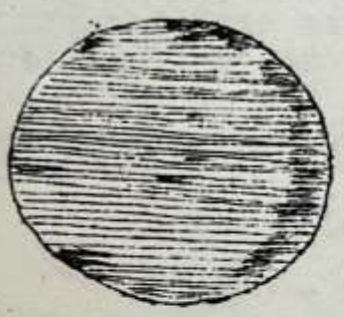
NATIVE CALAN

JAPANESE IMITATION STOVE

Inside the pot a metal disk catches the heat from the pot's rounded bottom and diffuses it evenly (See diagram). On top of the metal disk stands a round perilla or iron rack with legs about 1 ½ inches long. This rack holds the food away from the metal disk which is too hot and might burn it. At the same time its legs allow for a free circulation of hot air around the food which is the principle of oven-cooking. Another metal disk with a convenient handle fits in the neck of the stove. This disk catches the heat thrown up by the bottom disk. By reflection it aids in keeping the air inside the stove uniformly hot, and browns the top surface of the food being cooked.



IRON WIRE RACK WITH LEGS ABOUT 1½ INCHES LONG.

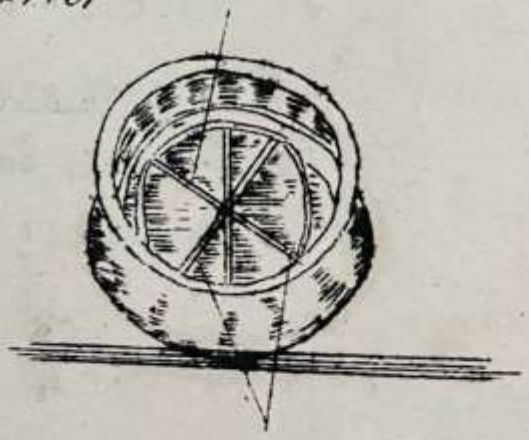


METAL DISK TO LINE THE BOTTOM OF GALVANIZED IRON SHEET.

METAL COVER WITH RIM MADE FROM GALVANIZED IRON SHEET.

ORDINARY CLAY POT COVER

METAL DISK MADE FROM GALVANIZED IRON SHEET



From the Maria Y. Orosa Her Life and Work, by Helen Orosa del Rosario.

Finally an ordinary clay pot cover goes on top of the metal cover without, please notice, going over the pot lip. This clay cover, again a poor conductor, acts as an insulator keeping the heat in the metal cover from escaping upwards, so that hot air may be kept circulating inside the pot between the two metal disks.

Oven Temperature:

A thermostat registers the temperature in an oven. When this is not available, as in the tin ovens illustrated in this handbook, a thermometer may be used. Unfortunately, a thermometer is not guaranteed to give reliable readings indefinitely. Checking of thermometer should be done at least once a month by submerging it in a saucepan of boiling water. It should register a reading of 212°F to indicate that it is still accurate. If no thermometer is available, you can be the best judge for the heat required in your baking operations.

Oven Temperature Guide

	Electricity	Gas
Very Slow Oven	250 - 275	1/4 - 12
Slow Oven	300 - 325	1
Moderate Oven	350 - 375	2
Hot Oven	400 - 425	3
Very Hot Oven	450 - 475	4
Extremely Hot Oven	500 - 525	5

Cooking Time Temperature Tables

Breads	°F	Time (in minutes)
Biscuits	425 - 450	10 - 15
Cream Puffs	375	60
Muffins	400 - 425	20 - 25
Popovers	375	60
Yeast Breads	400	30 - 40

Cakes		
Angel or true Sponge Cake	350 - 375	30 - 40
Cupcakes	350 - 375	15 - 20
Layer cakes with fat	350 - 375	20 - 35
Loaf cakes	350 - 375	50 - 60
Cookies		
Drop	350 - 400	15 - 15
Rolled	375	8 - 10
Pastries		
One Crust, unbaked	400 - 425	30 - 40
Meringue topping	350	12 - 15
Shell only	450	10 - 12
Two crust with filling	425 - 450	30 - 45
Two crust uncooked filling	400 - 425	45 - 60
Biscuits		
Rolled	450	10 - 12
Drop	450	10 - 12

BASIC BAKING MEASUREMENTS & SUBSTITUTIONS

Equivalent Weights and Measures

1 tsp = 5 gms = 5 cc = 60 drops
16 Tbsp = 1 c = 237 ml
1 pt = 2 c = 16 oz
4 c = 1 qt = 2 pts = 32 oz
4 qt = 1 gal = 3.8 l
8 qts = 1 peck = 2 gal
a barrel = 32 gal
1 mg = .001 gm
1 gm = 1000 mg
1 mcg or ug = .001 mg
1 ml = 20 drops

1 Tbsp = 3 tsp = ½ oz
1 c = ½ pint = 8 oz = 16T
1 oz = 2 tbsp = 28.35 gm (30cc)
1 lb = 453.6 gm = 16 oz
1 kg = 2.2 lbs = 1000 gms.
1 gross = 12 doz
1 L = 1.06 qt = 1000 ml
1 g = 15 grains = .035 oz
1 qt = 946.5 ml
4 pecks = 1 bushel

Commonly Used Abbreviations

A P	= as purchased	I.U.	= international unit
A. P flour	= all purpose flour	in	= inch
av	= average	kg	= kilogram
bp	= boiling point	l	= liter
bu	= bushel	m	= meter
C	= centegrade	mg	= miligram
c or C	= cup	min	= minute
cal	= Calorie	ml	= mililiter
cc	= cubic centimeter	mp	= melting point
cm	= centimeter	oz	= ounces
dia	= diameter	pc	= piece
doz	= dozen	pk	= peck
E.P.	= edible portion	pkg	= package
F.	= Farenheit	Pt or pt	= pint
ft	= feet	qt	= quart
g or gm	= gram	sec	= seconds
gal	= gallon	sl	= slice
hr	= hour	T or tbsp	= tablespoon
		t or tsp	= teaspoon

Substitution For Common Ingredients

1 sq. unsweetened chocolate	= 3-4 tbsp cocoa plus 1 tbsp. fat
1 tsp. baking powder	= ¼ baking soda plus ½ cup sour milk or ½ cup milk plus ½ tbsp vinegar or lemon juice.
1 cup butter	= 1 cup margarine or 7/8 cup lard plus ½ tsp. salt or 1 cup hydrogenated fat plus ½ tsp. salt.
1 cup heavy cream	= 1/3 cup butter plus 3/4 cup milk
1 cup coffee cream	= 3 tbsp. butter plus 7/8 milk
1 cup sour milk	= 1 cup milk plus 1 tbsp. vinegar or lemon juice.
1 cup whole milk	= ½ cup evaporated milk plus ½ cup water
1 cup sugar	= 1 1/3 cups brown sugar, packed lightly
	= 1 1/2 cup powdered sugar
1 lb. dried fruits	= 2 cups
1 cup A P flour	= 1 cup & 2 tbsp. sifted cake flour
1 cup sifted cake flour	= 1 oup A P flour less 2 tbsp.
1 tbsp. cornstarch	= 2 tbsp. A P flour
1 cup whole milk	

TABLE OF EQUIVALENT WEIGHTS AND MEASURES FOR COMMON INGREDIENTS

FOOD	Weight of 1 cup in gm	in oz	Volume of 1 lb in cups	REMARKS
Butter	224	8	2	
Cheese, cheddar	115	4	4	if grated
Eggs, fresh, large (2 oz each)				
Whole, yolk, white	240	8.5	2	1 cup whole = 5 1 c white = 8 1 c yolk = 12
Milk, whole or skim	244	8.5	2	
condensed	306	10.8	1 1/2	15 oz can=1 1/3 c
Evap. tall can	250	9	1 3/4	6 oz can = 2/3 c
NFMS (non-fat dry)	115	4	4	14½ oz can =1 2/3 3/4 c dry + 4 c water = 1 qt
Dry whole	110	3.8	4 1/4	1c dry + 4c water= 1 qt.
Fats, liquid	220	8	2	
solid	225	8	2	half lb bar = 1 c
Bread Crumbs	113	4	4	dry crust
Macaroni, dry-in	112	4	4	1 lb = 2¼ qt. after cooking
Flour, AP, sifted	110	4	4	
cake, sifted	96	3.3	4.3/4	
bread, sifted	112	4	4	
pastry, sifted	100	3.5	4½	
Banana, fresh slice	200	7	2	3-4 med sized= 2 cups
Peanut, shelled	144	5	3¼	1 lb in shell = 2/3 lb meat
Prunes, pitted	198	7	2 1/4	
Raisins, seeded	140	5	3¼	
Baking Powder, double acting			2¼	3.6 gm per tsp.
Baking soda			2 1/3	1 oz=2½ T = 4gms = 1 tsp
Cream of Tartar			3	3 gms = 1 tsp
Chocolate, melted	255	9	1 3/4	1 sq = 1 oz
Cacao Powder	112	4	4	
Coffee	85	3	5	
Peanut Butter	227	8	2	
Salt, free running	288	10 1/4	1 1/2	6 gms = 1 tsp.
Sugar, brown	200	7	2 1/4	
white, gran.	200	7	2 1/4	
confectioner	128	4 1/2	3 1/2	
Sirup, corn	328	11 1/2	1 1/3	
Honey	340	12	1 1/3	
Gelatin, dry	150	5 1/3	3	
Spices, ground, dry				1 tsp. = 2.5 gms

Adopted from the Handbook of Food Preparation A.H.E.A. 1965.

THE INGREDIENTS

FLOUR

Flour is the primary ingredient in baking. Wheat flour is best for baked goods because of its high protein content which makes available a larger amount of gluten for bread structure. The amino acids glutenin and gliadin make up the long protein strands known as gluten. Gluten gives framework to the dough and shape and form to the finished product.

Different baked goods need varying amounts of gluten. This determines the types of flour that are milled for the market. Generally, bread doughs need the highest percentage of protein because of their high gluten requirement.

Kinds of Flour in the Philippines

1. Bread Flour - contains the largest amount of protein, 12-14%. Nutrition wise, protein is essential for growth and repair of body tissues. Flour for bread making in the Philippines is marked "Bread Flour." It comes in 2 lb, 5 lb, and 10 lb packages for home use.
2. All purpose flour - contains 10 - 12% protein. This is sometimes referred to as family flour, general flour or pastry flour. It is the good median in the flour varities. It can substitute for either bread flour or cake flour in baking but needs more kneading for bread and less mixing in cakes to control gluten development.
3. Cake flour - contains the least percentage of protein. This is sometimes called weak flour or soft flour. It comes from soft wheat and as its name implies, is good for cakes, cookies and other goods that need little or no gluten at all. Cake flours are marketed in colorful boxes with kitchen tested recipes on the labels. It is good practice to read labels of all grocery items such as flour, canned goods and packaged items to make certain you get the right item for the intended use.
4. Ready Mixes - are "pre-mixed" flour. Some ingredients such as salt, baking powder, milk solids and sugar have been added. This saves time for the busy housewife. The package is simply opened and mixed with liquid ready for baking. This flour comes in special boxes with directions for use. There are mixes for muffins, cookies, cakes, pancakes, cupcakes, even siopao and bibingka in the market. It is wise to follow directions closely the first time you use these mixes. After some time you can vary the use of a mix but first know your flour well before putting it to other uses, to avoid frustration and waste. It is also wise to start with simple kitchen tested recipes.

Aside from protein, the building blocks of body tissues, flour contains considerable amounts of carbohydrates to supply heat and energy. It also contains fat that acts as solvent for the fat soluble vitamins A, D, E and K. Fat also gives heat and energy.

The B-Vitamins, Thiamine (B_1), riboflavin (B_2), and niacin, as well as the mineral iron, are lost during the milling of cereals but are restored to flour in a process known as "enrichment." To enrich means to fortify food with essential nutrients for better nutrition. Thiamine in flour is essential for healthy nerves and to combat beri-beri. Riboflavin affects normal growth especially of the hair and skin. Niacin prevents pelagra, a chronic disease of the skin which also affects the nervous system. The mineral iron prevents anemia or low supply of red blood cells.

How to Distinguish Flour

When rubbed between the fingers hard flour (bread flour) feels gritty or sandy. Soft flour (cake flour) feels sleek and smooth like talcum powder. Hard flour falls into separate particles if shaken in the hand. Soft flour clumps a bit and tends to hold its shape when pressed together.

Flour Storage

Flour should be stored in light ventilated rooms free from insects and rodents. It should be kept in clean dry tin or glass containers in a cool dry place.

When properly stored, flour ages naturally for 3-8 weeks. Otherwise, it develops undesirable color and texture and may even "sweat." Sweating refers to the absorption of unnecessary moisture by flour. This makes poor quality flour which results in inferior baked products.

LEAVENING AGENTS

Leavening Agent - A substance that produce gases when mixed with other ingredients causing mixtures to rise.

Types of Leavening Agents

A) Biological Leavening Agent:

i) Yeast - A single celled plant that reproduces by budding and is capable of converting sugar to alcohol and carbon dioxide in a process known as fermentation. This process causes flour mixtures to rise and gives volume to bread because of the leavening effect of carbon dioxide.

Yeast is marketed in two forms: dried yeast - mixture of yeast and starch or corn meal pressed into cakes and dried. The yeasts are alive but in an inactive form. Compressed yeast - a moist mixture of yeast and starch. The yeasts are in an active state. The presence of moisture makes the product perishable and should therefore be refrigerated.

B) Chemical Leavening Agent

i) Baking Powder - A chemical leavener consisting of baking soda and an acid. Flour or starch is added to stabilize the mixture and standardize it in such that at least 12% carbon dioxide is released when heated. They are classified according to their acid components as follows:

a) Phosphate - Contains calcium acid phosphate and/or sodium acid phosphate. This is an intermediate acting type. Gas is released partly during mixing and the rest during baking.

b) Sodium Aluminum Sulfate - Phosphate - (SAS-Phosphate)- Commonly known as double acting powder. Its phosphate reacts during mixing while the sulfate releases carbon dioxide only upon heating.

c) Tartrate - Contains tartaric acid and cream of tartar or potassium acid tartrate. It is fast acting powder releasing much of the gas during mixing.

ii) Baking Soda - sodium bicarbonate. A chemical leavening agent that releases carbon dioxide when acids or acid sources are added to it such as sour milk, molasses, cream of tartar and other dry acid salts.

Note: The container of the powders should always be recovered immediately after measurements are made. Deterioration of the powder is prevented considerably if this is observed.

C. Physical Leavening Agents - Mechanical manipulation of flour mixtures, such as creaming butters and sugar together, cutting in or folding ingredients and others leaven the mixtures by incorporating air. Steaming also causes some leavening effect. These are physical leaveners. They give the least leavening effect but aid considerably in the improvement of texture and volume of batters and doughs.

SALT

Chemically it is sodium chloride. In baking it helps regulate fermentation. It gives the crusty flavor to baked products and makes bread crumbs whiter because of the bleaching property of chlorine. Salt also prevents stickiness in doughs during kneading.

EGGS

One of the best protein foods. Eggs act as emulsifying agents for cakes. When beaten stiff and folded into flour mixtures, the eggwhites help in holding gases to increase the volume and tenderness of the baked product. Eggs also enhance the nutritive value and prolong the keeping qualities of baked goods. Older eggs are better for meringue.

SHORTENING

The general term used for fats and oils. They cut short the gluten strands, "shortening it." This contributes to the crumbly and tender texture of cakes and cookies. Shortening is added last among the ingredients in bread making to give time for full development of the gluten strands. Shortening contributes to the improvement of the taste, nutritional and eating qualities of baked goods. It also helps to prolong shelf-life.

SUGAR

Sugar acts as food for the yeast in yeast leaven breads. Generally, it is responsible for the attractive golden brown color of baked goods. It contributes to the development of good flavor and aroma plus added energy value of the baked product.

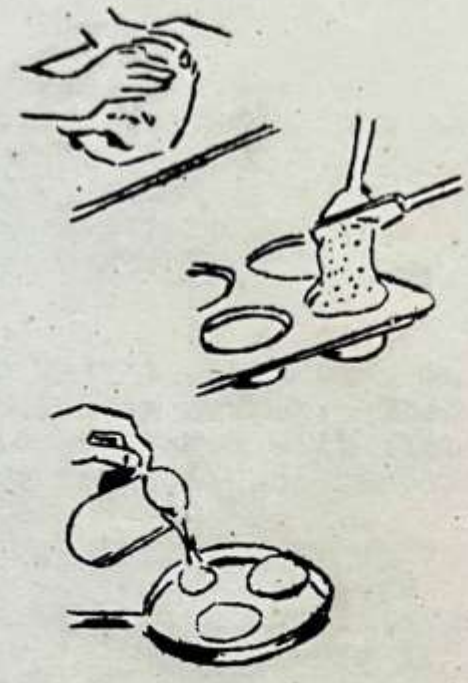
LIQUID

Liquid may be plain water or milk or fruit juices. The latter two make baked goods more nutritious. Liquid makes possible gluten formation, acts as solvent for sugar and salt and is a dispersing medium for fats, yeasts and other substances, to distribute them uniformly in the mixture. Milk augments the protein and mineral content of baked products. It helps improve the color of the crust by caramelization of the milk sugar (lactose). Milk has the ability to tighten and close the cells in crumbs for better texture and increase volume due to an increased ability of the mix to absorb water.

WORKING WITH THE INGREDIENTS

Flour Mixtures

There are two kinds of flour mixtures, batter and dough. Batters are softer mixtures of flour, liquid and a number of the ingredients discussed and are divided into two types, drop and pour batter. The amount of liquid used determine the consistency and resulting kind of batter. Drop batters use more flour than pour batters. They can be dropped from a spoon to a baking sheet. An example of these are drop biscuits, cookies and muffin mixtures which shall be dealt with more extensively in a succeeding part of the manual. Pour batters use a greater proportion of liquid than flour and are poured to baking pans such as mixtures for cakes, mammon, bibingka etc.



Doughs are mixtures of flour and liquid plus the other ingredients in baking. They can be manipulated and kneaded to form smooth and elastic mixtures for breads, yeast rolls and coffee cakes. They use more flour than liquid and are firmer and less sticky when handled.

It is important to know the kind of flour to use in each type of mixture. The method of mixing and the product desired are indices in the choice. Pour batters generally do not need much mixing. Soft, velvety goods are expected from them. Soft wheat flour or cake flour is used because the protein content is low and the possibility of gluten development is less. Drop batters use all purpose flour. Mixing is not very thorough for these mixtures. Biscuits and pastries are samples of goods made from them. Crisp products are desired. Doughs need strong flours for good framework that can withstand kneading, rolling, and shaping into the many types of bread. A good amount of gluten is necessary for this. Bread Flour, because of its high gluten content, is best but all-purpose flour may be substituted.

Mixing Techniques:

Mixing methods greatly affect flour mixtures and the resulting baked product. A variety of techniques have been developed for efficiency and convenience.

1. Creaming - Rubbing one or two ingredients against a bowl with the help of a wooden spoon or electric mixer to make a soft fluffy mixture. For example, butter and sugar will acquire a lighter color and will not look sugary or greasy when they have been creamed together sufficiently well. Creaming flour and butter also makes them lighter and fluffier.

2. Cutting In - Mixing fat to flour with the use of a pastry blender or two knives in a scissor-like manner. This method cuts fat into small pieces, coating them with flour to form course, granular mixtures for pastries and biscuits.

3. Folding - This is working with two ingredients very gently to retain air in the mix. It often involves one delicately textured ingredient, such as beaten eggwhite or whipped cream, which would be reduced to nothing were it handled crudely, and a batter type mix. Folding is most efficiently done by hand although many people use an electric mixer or the rubber scraper.

If the ingredients to be folded are liquid, pour the less fluffy one on top of the other. Dry ingredients are sprinkled on top of the fluffy mixture and folded gradually and gently.

To fold with a rubber scraper cut through the ingredients and scoop up to bring ingredients at the bottom up to the top. Slide back scraper to the bottom and scoop as before. Continue until ingredients are blended.

To fold with an electric mixer place the ingredients in a bowl. Turn on the mixer at the lowest speed and fold for not more than one minute at most. Push batter to the center through a scraper to blend in ingredients on the sides. Just before the work is completed, finish folding using a rubber scraper or hand to avoid over mixing.

To fold by hand keep the fingers of the right hand spread slightly apart. Cut through batter gently making sure to go to the bottom of the bowl.

Pull your hand across the bowl scraping the bottom of the sides of the bowl. Bring up your hand with some batter from the bottom of the bowl. Twist hand to empty from batter. Cut down through batter again in a different place. Repeat the entire process folding the batter over and over until the ingredients are combined but still light. Clean hands properly for this.

4. Cut and Fold - A combination of two motions: cutting vertically through the mixture and turning over and over by gliding the spoon or rubber scraper across the bottom of the mixing bowl at each turn.

5. Beating - To incorporate air in a mixture by mechanical agitation. It could be done with the aid of special gadgets like wire whips, egg beaters or electric food mixers or with a fork.

6. Kneading - Refers to the pressing, folding and stretching of doughs to develop gluten for good bread structure. In Pilipino this is known as "masa" or "masahe." This technique makes doughs smooth and elastic. It is used primarily in making doughs for puff paste and yeast breads or in working with mixtures that are too heavy to be beaten with a spoon.

When kneading soft sticky doughs, it is best to use a low, wide rimmed dish pan which could be held steady with the left hand while the right hand pulls the dough at different points. Kneading is continued until the mixture no longer sticks to the pan when pulled out abruptly.

To knead medium to heavy doughs, sprinkle flour lightly on a flat board or table top and work the dough on it. Fold the dough in half then press down and push with the heel of one or both hands. Rotate the dough a little, fold over and continue the process until the dough is smooth and elastic. Flour may be sprinkled lightly on the board at various intervals during the kneading to get the dough off the board.

7. Stirring - Often done with a wooden spoon, rotating it through a mixture as long as necessary, usually until the ingredients are combined. No particular care in stirring is necessary except to remember to stop stirring as soon as the ingredients are combined. The texture of many kinds of cakes and cookies are spoiled by over mixing.

8. Whipping - A kind of beating for eggs and cream to fill them with air and make them thick and fluffy.

9. Sifting - To separate coarse particles in the ingredients by passing through a sieve. Air is incorporated through this method. For example, sifting flour or sugar, etc.

Tips in Working With the Ingredients

1. Read the experiment procedures to the end. Check whether you have all the equipment and ingredients at hand. Think of substitute ingredients if needed.

2. Look up the meaning of terms you cannot understand or doubt. A glossary is at the back of this handbook.

3. Assemble all ingredients and utensils needed and arrange them within easy reach.

4. Do as much pre-preparation activity as possible before mixing. Measure and sift ingredients, grease pans, chop nuts, melt butter or thaw ingredients, put liquid ingredients together or dry ingredients together when called for in the procedure,etc. This minimizes errors in measurements and mixing.

5. Make all measurements level using standard cups and measures.

6. Dry ingredients, such as flour, sugar, salt, etc. are heaped to over-flowing in cups or measuring spoons then leveled off with a straight-edge knife or spatula.

7. Sift flour before you measure when recipes call for it. Do not tap cup of sifted flour. It will pack the ingredients back again. Sifting is done to incorporate air to flour to make products lighter and fluffier.

8. Pack brown sugar firmly into measuring cup and level off with the spatula.

9. Crack down lumps of sugar by running a rolling pin over them before measuring.

10. Do not dip cups or spoons into molasses, syrup or honey. Pour liquid ingredients into the measuring equipment to prevent them from adhering to the sides and dripping on the work space.

11. In measuring fats, bring to room temperature if stored in the refrigerator, then press firmly into spoon to over flowing. Level off.

12. When measuring liquids, use standard graduated measuring equipment such as glass cups and graduated measuring spoons. Put cup on a level surface and read at eye level to obtain accurate liquid measure.

13. Make it a habit to trim, peel, scrape or measure and sift dry ingredients on waxed paper to facilitate cleaning.

14. Keep a damp cloth close at hand. Cooking is a lot more fun and more successful when your hands and kitchen are tidy.

15. Tidy up equipment as you work, wipe off grease from can openers, wash pots and pans, clear off work area of empty boxes, etc.

16. Wipe your range each time you use it.

17. Follow directions closely.

C O O K I E S

Cookies are always popular. They are really "little cakes," flat, sweet and small. They can be made in a variety of shapes and flavors, and served in just as many different ways.

Some cookies are thin, some are thick, some are light and others are dark. Some are decked with fruits or nuts and others trimmed with frostings and decorations. For this reason, they go well on any occasion -- for snacks after school, desserts or as party fare. They go a long way and can be prepared at leisure and stored for the busy days.

To store cookies, baked or unbaked, wrap them in plastic bags or wrapping sheets and freeze. Cool baked cookies well before freezing. Do not wrap together cookies of different flavors, as flavorings transfer during storage. Frozen cookies keep for as long as six months and thaw very quickly when needed.

Types of Cookies:

1. Drop Cookies are irregular and unevenly shaped. They are made simply by dropping the cookie mix from a teaspoon to a baking sheet to get the popular tongue shaped cookies and the macaroons.

2. Rolled cookies are made from doughs which have been rolled out and cut with special cutters to form shapes that fit special occasions such as Christmas, Valentine's Day and Easter.

To make good rolled cookies, the dough should be slightly firm for rolling. Avoid as much as possible, rolling on too much flour. Beating flour into the dough produces more tender products because the particles of flour are coated with shortening. Too much flour rolled into the dough will make the cookies virtually inedible. Chilling and rolling out between waxed paper eliminate the need for more flour to firm up the dough. Long chilling though makes most high fat doughs difficult to roll.

3. Molded Cookies are the richest and the most festive type. They are made with more butter and are pressed out of cookie press or pastry tube onto cookie sheets to form rosettes, rings or ribbons, and the many varieties of well-shaped cookies in the bakeshops. The flour in this type of cookie should be reduced to about 1/4 the total quantity to make the dough soft enough to be forced through the tube, yet firm enough to keep its shape during

baking. These cookies can be placed less than an inch apart on the baking sheet since they hardly spread at all.

4. Cookie Bars are cakes which have been cut into bars after baking. A firm hand will help to mark off even squares for cutting. Cookie bars look and taste better when they are made small. Cut them into one inch squares or 1 x 2 inch bars.

5. Refrigerator cookies are frozen and cut into desired shapes before baking.

All purpose flour or cake flour are used in baking cookies. For tender products use the softest dough that can be handled and shaped into the desired form. The mixing methods used for cakes are generally followed except that cookies require less liquid than cakes or none at all when eggs are added.

In making cookies you can give way to your imagination. With a basic cookie recipe, grated coconut, mashed bananas, raisins, nuts or a combination of any of these may be added. Cake crumbs, biscuits, pinipig or any of the fruits, dried or fresh, will give good chewy cookies.

Chocolate Cookie Bars

2/3 cup unsifted flour
1/2 tsp. baking powder
2 squares unsweetened chocolate
1 cup sugar
1/4 tsp. salt
1/3 cup butter or shortening
2 eggs
1 tsp. vanilla
1/2 cup California raisins, chopped

Mix flour with baking powder and salt. Melt butter and chocolate in a double boiler. Beat eggs well; gradually add sugar, beating well after each addition. Blend in chocolate raisins and vanilla. Add flour, stir in nuts. Spread in a greased square pan. Bake in a moderately hot oven (350°F.) for 25 minutes or until done. Cool before cutting. Makes 20 cookies.

Coconut Chews
(Cookie Bars)

1 1/2 cups shifted enriched flour
3 tbsp. shortening
1 cup firmly packed light brown sugar
1/2 cup flaked coconut
3/4 cup chopped pili nuts
1 tsp. vanilla extract
1/2 cup California raisins, chopped

Measure flour into mixing bowl. Cut in shortening until mixture resembles coarse crumbs. Stir in brown sugar, coconut and pili nuts. Blend together eggs and vanilla. Add to flour mixture, stirring until well blended. Batter will be very stiff. Spread in greased 7 x 11 inch baking pan. Bake in preheated 350°F. oven for 25 to 30 minutes or until cookies spring back when lightly touched. Remove pan from the oven and cool 10 minutes. Cut into bars.

Raisin-Sugar Cookies
(Drop Cookies)

4 tbsp. butter
1 egg
1/4 tsp. salt
1/8 tsp. baking soda
1/4 tsp. vanilla
1/3 cup sugar
1 cup all purpose flour
1/2 tsp. baking powder
1 tbsp. milk
1 cup California Raisins, chopped

Sift salt, soda, baking powder and flour together. Add vanilla to milk. Cream butter and sugar well. Mix in egg and raisins. Add part of dry ingredients, beat well. Pour in all of liquid ingredients, continue mixing. Add remaining dry ingredients. Mix until well blended. Drop by teaspoonful onto greased cookie sheets. Press with tines of fork to flatten. Bake in hot oven (400°F.) for about 10 minutes.

Peanut Crinkles
(Drop Cookies)

1/2 cup peanut butter
1/2 cup brown sugar
1 egg, well beaten
1 tsp. soda
1/4 cup butter
1/2 cup granulated sugar
1 cup sifted cake flour
1/2 cup California raisins, chopped

Cream butter and peanut butter together. Add sugar gradually, beat until light and fluffy. Add egg and raisins beat well. Sift dry ingredients together; add to a creamed mixture; beat thoroughly. Drop by teaspoonfuls on slightly greased cookie sheet. Press down each cookie with the tines of a fork. Press a second time so that creases are at right angles to those first made. Bake for 10 to 15 minutes in a moderately hot oven (350°F.). Yield: 4 1/2 dozen cookies.

Sand Tarts
(Rolled Cookies)

1/2 cup shortening
1 egg, well beaten
1 1/3 cups all-purpose flour (sifted)
1/2 tsp. salt
1 cup sugar
1 tsp. grated lemon rind (may use calamansi)
1 tsp. baking powder

Cream shortening; add sugar gradually, beat until light and fluffy. Add egg, calamansi or lemon rind. Stir well. Add sifted flour, salt and baking powder. Mix and chill dough for 1 hour. Roll to 1/8 inch thick. Cut into fancy shapes. Place on a greased cookie sheet. Bake in a moderate oven (350°F.) 10 to 15 minutes. Makes 3 dozen cookies.

Spritz
(Molded Cookies)

1/3 cup butter
2 to 3 tsps. vanilla
1 cup sugar
1 egg
2 cups all-purpose flour
1/2 tsp. salt

Cream butter to soften. Add vanilla and sugar gradually. Creaming after each addition. Add unbeaten egg, stir well. Sift flour and salt together and add to the mixture. Mix well. Put dough in a cookie press or a pastry tube and press desired shapes. Bake in preheated oven at 325°F. for 10 minutes.

STANDARD SCORE SHEET FOR COOKIES

Name of Recipe _____

Type _____ Judge _____

					Good (3)	Fair (2)	Poor (1)
Outside Characteristics:							
DROP	**BAR**	**REFRIG-ERATOR**	**ROLLED**	**MOLDED**			
Size and shape:							
Fairly uniform mound shape	Uniform will hold shape	Uniform thin slices	Retains shape of cutter	Uniform thin slices			
Color:							
Lightly browned	Lightly browned	Lightly browned	Lightly browned	Lightly browned			
Inside Characteristics:							
Texture:							
Slightly moist, tender.	Slightly moist, thin crust, tender.	Crisp, tender	Crisp, tender.	Crisp, thin slightly moist if thick, tender.			
Flavor:							
Pleasing, no off flavor, rich.	Pleasing, no "off" flavor, rich.	Pleasing No "off" flavor, rich.	Pleasing no "off" flavor, rich.	Pleasing, no "off" flavor, rich.			

Score: (Maximum -- 12)

Comments:

Cookies

CAUSES OF POOR QUALITY

Outside Appearance

Irregular shape:	(Drop) Improper dropping technique
	(Molded) Poor molding
	(Refrigerator) Improper molding of dough; dough not chilled enough when sliced; thin, sharp knife not used for slicing.
Hard Crusty top:	(Bar) Too low oven temperature.
Dark crusty edges:	Overmixing.
Too brown:	Overbaking.
Overbrowned spots:	Baking sheet too large for oven.

Inside Appearance

Too dry, hard:	Overbaking.
	(Rolled) Rolling in too much flour or rerolling.
Dough	(Drop) Underbaking.
Soft:	(Refrigerator) Cut too thick.
Tough:	(Rolled) Excessive rerolling.
Crumbly:	(Molded) Insufficient shaping.
	(Bar) Cutting bars when too warm; overbaking.

BISCUITS

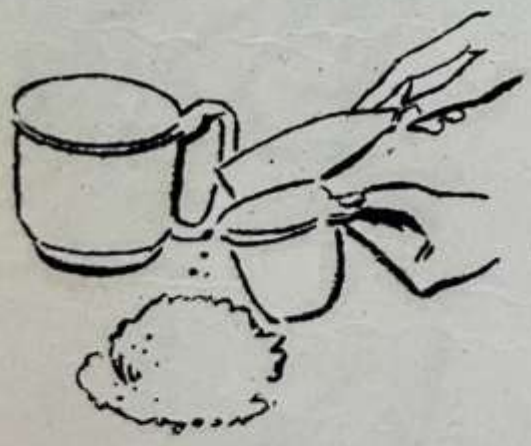
Biscuits are small flaky quick breads. They are leavened with fast acting leaveners which make preparation time shorter than any yeast leavened bread. Biscuits are perfect accompaniments for specialty foods like fried chicken, roasts, steaks, etc. They can be made into miniature finger foods seasoned with seeds, raisins, cheeses and other ingredients and served for snacks, as appetizers or desserts. They are good light, flaky, tender and eaten hot.

There are two ways to make biscuits: 1) Using Solid Fats. Solid fat is cut into the flour with a fork, a pair of knives or a pastry blender until it coats the flour and is fairly crumbly and mealy. Liquid is added to make a soft dough, then the mixture is rapidly but lightly kneaded to evenly distribute the moisture and sufficiently develop the gluten for a flaky product. 2) Using liquid Shortening or "Wet to Dry Method." Liquid shortening or oil is added to the liquid ingredients and mixed with the dry ingredients to make a soft dough. It is kneaded rapidly but lightly and treated like the solid fat dough.

Basic Standard Biscuit Recipe

2 cups flour
1 tsp. salt
1/2 to 3/4 cup milk
2 tsp. baking powder
1/4 cup shortening

Procedure:

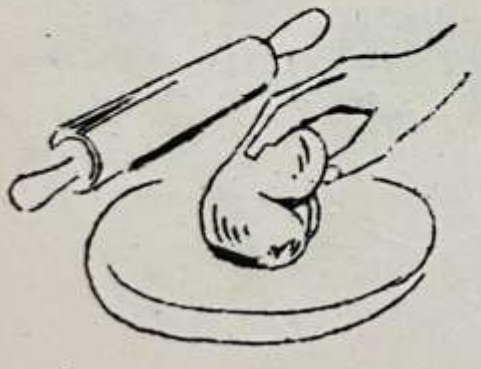


Pre-heat oven to 450°F. Measure and sift all dry ingredients (salt, baking powder, and flour) together.
To measure flour, place a sheet of waxed paper on the counter top and sift some flour on it. This will keep your work area neat and make cleaning easy. Pile sifted flour into the measuring cup using a spoon or a spatula. Level off with a straight edge knife or spatula.

Add shortening to the flour. To measure shortening, press shortening firmly into the measuring cup and level off with the straight edge of a rubber scraper.

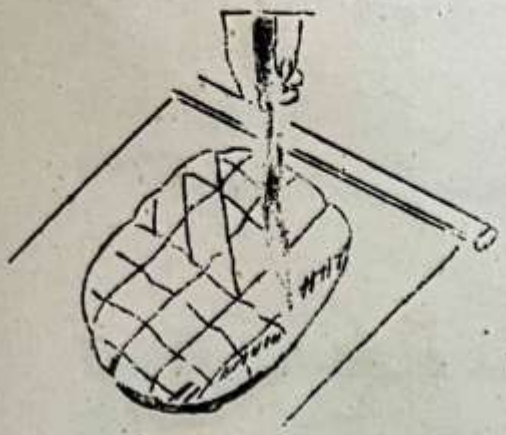
Cut in shortening to the flour. Blend until the mixture becomes crumbly resembling coarse corn meal. A pastry blender is a convenient tool to use but two knives can do the job as well, working scissor like on the mixture. Cutting shortening into the flour yields thin layers of fat in the biscuit dough and results in the flaky texture typical of good biscuits.

Pour in 1/2 cup milk and mix quickly but lightly. Mix only until the dough is soft but not sticky and leaves the sides of the bowl to form a ball. More milk may be added when necessary.



Turn dough out into a lightly floured board. Knead dough gently about 30 seconds. Use finger tips to press the dough, folding the far edge to the center and turning dough as you knead. Excessive kneading results in tough products and can cause loss of leavening.

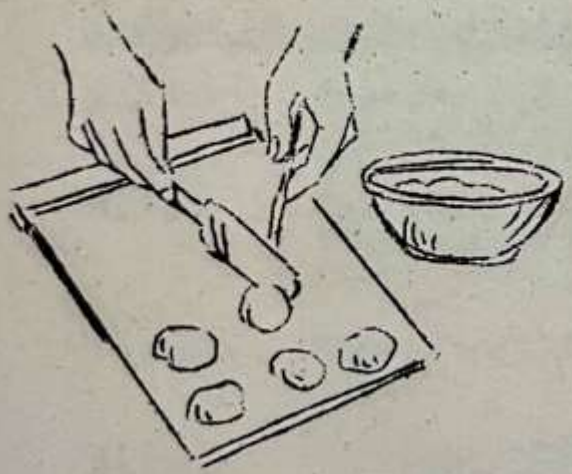
Roll out dough to about half the thickness desired in your finished biscuits. Use short-light strokes of the rolling pin and roll in one direction only. Cut into rounds with a floured cutter or into attractive squares or rectangles using a floured knife.



Push the left over dough together but do not knead. Then roll and cut more biscuits.

Drop biscuits are prepared in much the same way as the rolled biscuits. Oil may substitute for lard to eliminate the cutting step. All the liquid ingredients are poured in at the same time to the flour and blended until no dry ingredients remain on the sides of the bowl.

Bake biscuits in pre-heated very hot oven 450°F for 12 to 15 minutes.



Recipe Variations:

Biscuits are easy to vary. Cheese, raisins, fruits, ham or spices may be stirred into the batter. Drop biscuits are ideal toppings for casseroles. Anise seeds may also be sprinkled on top of biscuits before baking.

STANDARD SCORE SHEET FOR BISCUITS

Name of Recipe _____

Method _____ Judge _____

		Good (3)	Fair (2)	Poor (1)
Outside Characteristics:				
Shape	Uniform; straight sides and level tops on rolled biscuits.			
Size:	Uniform; twice the size of unbaked biscuits.			
Color:	Uniform golden brown tops and bottoms -- sides lighter; free from yellow or brown spots.			
Crust:	Tender; moderately smooth; free from excess flour.			
Inside Characteristics:				
Color:	Creamy white; free from yellow or brown spots.			
Grain:	Flaky, pulling off in thin sheets; medium fine, even cells.			
Texture:	Tender; slightly moist; light.			
Flavor:	Pleasing; well-blended with no bitterness.			
NOTE:	Drop biscuits will be nicely rounded with rough surface and crisper crust. They will not be as flaky.			

Score: (Maximum -- 24)

Comments:

CAUSES OF POOR QUALITY

OUTSIDE APPEARANCE

Irregular shape:	Too much liquid; dough not rolled to uniform thickness; improper cutting of dough; uneven oven heat.
Too small:	Too much shortening; overmixing or handling; oven too hot.
Too pale:	Dough too stiff; oven temperature too low.
Too dark:	Oven too hot; baked too long.
Uneven color:	Shape uneven; incorrect placement in oven; uneven oven heat.
Bottom crust too dark:	Not baked on shiny pan.
Yellow or brown spots:	Ingredients not well mixed.
Tough:	Too much flour; overmixing or handling; incorrect oven temperature.
Rough:	Too much liquid; incorrect kneading or rolling.
Excess flour on crust:	Not enough liquid; too much flour on pastry cloth.

INSIDE APPEARANCE

Poor Color:	Too much shortening; poor quality ingredients.
Yellow or brown spots:	Ingredients not well mixed.
Not flaky:	Not enough shortening; too much or too little mixing of shortening with flour mixture; under kneading.
Coarse, uneven cells:	Overmixing
Too dry:	Dough too stiff; overbaking
Too moist:	Underbaking.

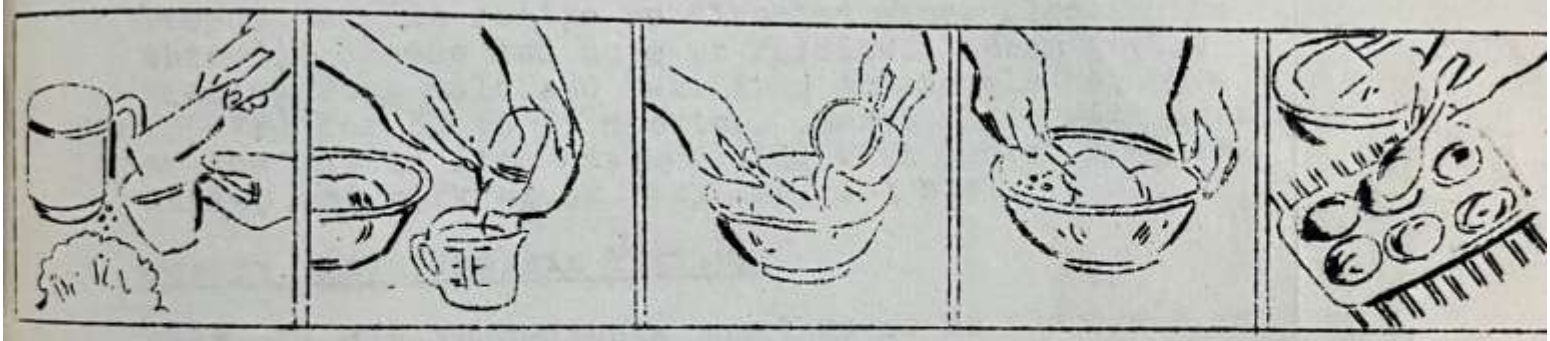
Crumbly:	Too much shortening.
Tough:	Not enough shortening; overmixing.
Heavy:	Too much shortening; overmixing; underbaking.
FLAVOR	Wrong proportion or improper mixing of ingredients.

MUFFINS

Muffins are simple cup breads leavened with chemical leaveners and are considered a member of the quick bread family. A variety of quick loaf breads and coffee cakes can be derived from the basic muffin recipe below.

Basic Muffin Recipe

2 cups all purpose flour
1 tsp. salt
1 egg
1 tbsp. sugar
2 tsp. baking powder
3/4 to 1 cup milk
2 tbsp. melted shortening or oil



PROCEDURE:

1. Preheat the oven to 450°F. Measure and sift dry ingredients together (flour, salt, baking powder and sugar) in a bowl.

2. Lightly beat the egg and add to the milk. Add melted shortening or oil into the egg - milk mixture.

3. Pour liquid ingredients all at once into dry ingredients.

4. Stir lightly just so dry ingredients are moistened, about 25 to 30 strokes. It is important not to over mix muffin batters. Over mixed batters result to uneven textured products. Properly mixed batters should fall back in lumps when spooned from the bowl.

5. Spoon into greased muffin pans filling the cups about 3/4 full. Bake in preheated oven for 20-30 minutes or until golden brown.

Recipe Variations:

Quick Sweet Roll

1 recipe basic muffin
2 tbsp. cinnamon
1/4 cup brown sugar
1/4 cup chopped nuts
1/2 cup California Raisins

Top plain muffin with a mixture of cinnamon, sugar and nuts and bake as directed for plain muffins. Serve at breakfast or meriendas.

Muffin Ring Mold

1 basic muffin recipe
1 cup raisins or nuts
1 cup shredded cheese

Prepare muffin recipe as directed above blending in shredded cheese and nuts or raisins. Spoon into a greased ring mold and bake in a moderately hot oven (350°F) for 30 to 35 minutes. Serve plain with butter or the muffin ring may be filled with sauted mongoes, shrimp and pork as an easy one dish meal.

Peanut Butter Raisin Muffins

Sift all dry ingredients together as in the basic recipe. Cut in 1/2 cup peanut butter and chopped raisins until mixture resembles coarse crumbs. Proceed as directed for basic muffins.

Coconut Topped Banana Muffins

Increase sugar to 1/3 cup. To the egg mixture, add 1 medium size mashed banana and 1 tsp. calamansi or lemon juice. Proceed as directed for basic muffins through dropping batter into the muffin cups. Top each muffin with two teaspoonfuls toasted shredded coconut. Bake as directed for basic muffins.

Fresh Fruit Muffins

Increase sugar to 1/4 cup. Stir in 1 cup chopped fresh mangoes or strawberries or chopped peeled orange to flour mixture. Proceed as directed for basic muffins. (If oranges are used, add 1 tsp. grated rind to flour mixture for added flavor.)

STANDARD SCORE SHEET FOR MUFFINS AND QUICK BREADS

Name of Recipe _____

Method _____ Judge _____

		Good (3)	Fair (2)	Poor (1)
Outside Characteristics:				
Shape:	Uniform; well-rounded top; free from peaks; no cracks.			
Size:	Uniform; large in proportion to weight.			
Color:	Uniform golden brown.			
Crust:	Tender; pebbled or slightly rough; shiny.			
Inside Characteristics:				
Color:	Creamy white or slightly yellow; free from streaks.			
Grain:	Round, even cells; free from tunnels.			
Texture:	Tender; moist; light.			
Flavor:	Pleasing; well-blended with no bitterness			
Score:	(Maximum -- 24)			

Comments:

CAUSES OF POOR QUALITY

OUTSIDE APPEARANCE

Irregular shape:	Too much flour; not enough liquid; overmixing. Too much batter in pans; oven too hot.
Too small:	Too much flour; too much shortening; overmixing; oven too hot.
Too pale:	Overmixing; oven not hot enough; underbaking.
Too dark:	Too much sugar; oven too hot; overbaking.
Uneven color:	Overmixing; too much batter in pans; uneven oven heat; incorrect placement in oven; oven too hot.
Tough:	Too much flour; not enough shortening; overmixing; overbaking.
Too smooth:	Too much liquid; overmixing.
Dull, not shiny:	Overmixing.

INSIDE APPEARANCE

Poor color:	Poor quality ingredients.
Streaks:	Egg and milk not well blended.
Coarse or uneven cells:	Insufficient beating of egg, overmixing.
Tunnels:	Too much flour; not enough liquid; overmixing; too much batter in pan; oven temperature too high. (To decrease the tendency toward tunnel formation increase sugar or shortening and/or decrease amount of egg.)
Too dry:	Batter too stiff, overbaking.
Too moist, waxy:	Insufficient beating of egg; underbaking.
Crumbly:	Too much flour; oven temperature too low.

Tough:	Too much egg; not enough shortening; overmixing.
Heavy:	Overmixing; underbaking.
FLAVOR	Wrong proportion of ingredients.

P A S T R Y

Pastries are one of the most popular dessert and snack foods. Many seasonal fruits go well with a pie crust. Any of our wide range of desserts can fill in a pastry shell. Buko pie, banana, mango and egg pies are among the favorites.

The secret to a delightful pastry is the pie crust. Two outstanding characteristics of a good pie crust are flakiness and tenderness. These characteristics are best achieved by restricting gluten development to the minimum and this is done by:

1. the use of hydrogenated fat or shortening such as lard. Hydrogenated shortenings are plastic and pliable with a greater ability to coat the flour particles when cut into the ingredients.

2. mixing the ingredients as quickly as possible. We have learned that handling the dough when kneading, mixing, rolling and re-rolling develop the gluten in flour. This toughens the flour mixture and produces a mealy pastry. This should be avoided. However, some gluten development is essential for a flaky pie crust. Mix the ingredients just enough to make the fat molecules coat the flour particles to form small lumps. These fat-coated flour lumps are spread out into layers when the dough is rolled to give a flaky product.

3. use as little liquid as possible. The presence of moisture aids in the development of gluten.

4. have all ingredients at room temperature. Cold ingredients added to the mix solidify and harden fat limiting its ability to coat flour particles.

How to Prepare Pie Crusts

Basic Recipes:

Ingredients	Single Pie Crust	Double Pie Crust
All purpose flour	1 1/2 cups	2 cups
Salt	3/4 tsp.	1 tsp.
Lard	1/2 cup	3/4 cup
Water	2 1/2 tbsp.	1/4 cup

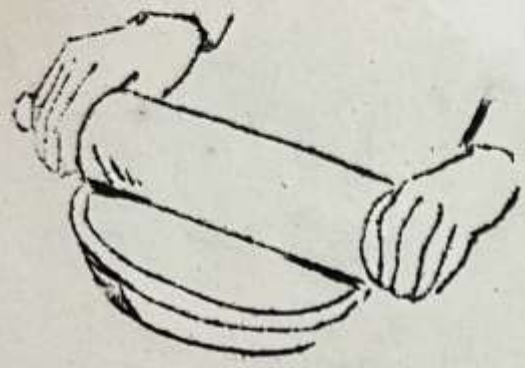
Single Crust Mixing Procedure:

Measure flour without sifting. Sift with salt into mixing bowl. Have lard at room temperature. Measure and add to flour mixture. Blend with pastry blender until mixture resembles coarse meal.

Use water right from the tap. Measure and sprinkle over the flour mixture. With a table knife, press dough together. A few drops of water may be added if dough will not hold together.

Sprinkle flour lightly on board and rolling pin. Place the dough on the board and shape into ball with your hands.

Roll dough from center to edges, releasing pressure near the edge to keep thickness of the dough even. Roll in all directions to maintain perfect circle. The dough should be an inch larger than the pie plate.



Roll dough over the rolling pin then unroll over the pie plate. This will prevent the dough from breaking when transfering from the board to the pie plate. Fit snugly on the pan.

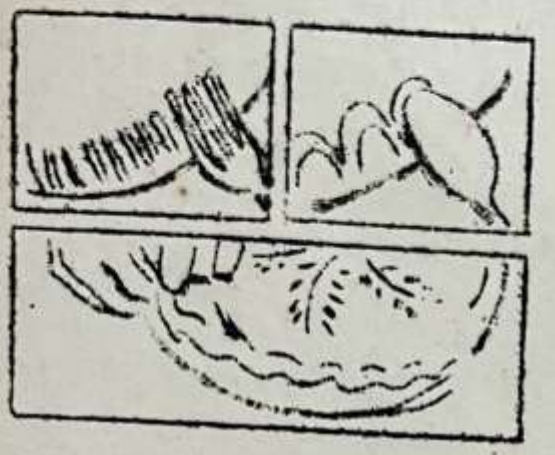
Prick liberally with the tines of a fork. Bake at 420°F. in pre-heated oven for 12 to 15 minutes.

Double Crust Procedure:

Use ingredient proportion for double crust and mix ingredients as for the single crust. Divide the dough into two and roll out the lower crust. Fit snugly on pie plate, prick liberally and set aside.

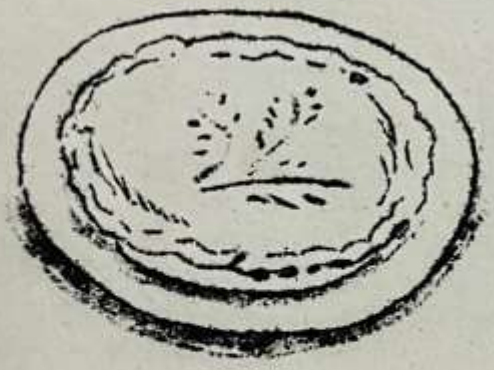
Prepare desired filling and pour over lower crust. Roll out other half of the pastry dough and unroll on top of filling.

Cut off lower crust at pan edge. Cut edge of top crust 1/2 inch wider than the bottom crust. Tuck edge of top crust under edge of bottom crust before fluting edges. Juices are sealed in the pie this way.



Edges of pies can be crimped with tines of a fork or tip of a teaspoon. For fluted edges, crimp dough between knuckle of left forefinger and thumb and fore-finger of right hand.

The top of a double crust pie is gushed to allow steam to escape. Any design such as twigs, flowers, etc. may be used.



Bake double crust pies at 425°F for 30 to 35 minutes if fruit filling is uncooked and 25 minutes if filling is cooked. Pie crusts must be flaky and golden brown when ready to serve.

Note: To prevent crust shrinkage, bake pie shells between 2 pans of equal sizes or cut pastry with extra edge; pinch it over and under the edge of the pan to anchor it. Prick pie shells liberally with tines of fork before baking.

Recipes

Buco Pie

Prepare pastry dough for double crust pie. Roll out the lower crust and fit snugly into the pie plate. Prick liberally. Set aside.

Prepare filling by measuring the following:

2 cups sliverd young coconut meat
3/4 cup sugar
1/2 cup flour
1/2 cup coconut water
1/2 cup evaporated milk
flavoring if desired

Blend ingredients together. Cook over slow heat stirring constantly until thick. Pour into pastry lined pan. Top with second crust. Bake as directed for double crust pies.

Banana Cream Pie

1/4 cup sugar
6 tbsp. flour
1 1/2 cup milk
3 bananas sliced lengthwise
2 eggyolks, slightly beaten
1 tbsp. butter
1/2 tsp. flavoring

Prepare recipe for single pie crust

Bake as directed.

Prepare cream filling by scalding milk on top of a double boiler. Combine sugar and flour and stir into scalding milk, stirring constantly to prevent scorching. Cook until the mixture thickens. Remove from the fire. Pour half of the mixture into the slightly beaten egg yolks, blend quickly. Gradually add to the remaining mixture in the boiler, continue cooking; stir constantly until mixture just coats the spoon. Stir in butter and vanilla Cool.

Meanwhile, beat 3 egg whites until fluffy but not stiff. Add 6 tbsp. sugar gradually, beating until meringue is very stiff and finely textured.

Arrange the sliced bananas in the baked pie shell. Pour in cooled cream filling top with the meringue, spread evenly to the edge of the filling. Swirl the meringue into peaks with the back of the spoon.

Bake at 425°F. oven just long enough to brown the peaks of the meringue. Cool slowly to room temperature before serving.

Mango Cream Pie

Prepare as in recipe for banana cream pie. Substitute about 4 ripe mangoes for the bananas. Choose firm ripe fruits. Slice into strips and arrange on baked pie crust. Cover with cream mixture then with meringue. Bake as directed for banana cream pie.

STANDARD SCORE SHEET FOR PASTRY

Name of Recipe _____

Judge _____

		Good (3)	Fair (2)	Poor (1)
Outside Characteristics:				
Shape:	Even thinness all over; neat even edges.			
Size:	Fits pan well.			
Color:	Light golden brown with darker brown edges.			
Crust:	Slightly blistered; rough; not smooth or leathery looking.			
Inside Characteristics:				
Texture:	Delicately crisp; flaky; not compact or soggy.			
Tenderness:	Easily cut but not crumbly or tough.			
Flavor:	Rich; delicate; no scorched fat or salty taste; does not overpower taste of filling.			
Score:	(Maximum -- 21)			
Comments:				

CAUSES OF POOR QUALITY

Tough crust:	Insufficient shortening; too much water; overmixing when water is added; excess flour on pastry cloth; overhandling or kneading dough.
Solid crust:	Insufficient shortening; overmixing shortening and flour; overmixing when water is added; overhandling or kneading dough; oven temperature too low.
Too pale:	Overmixing; oven temperature too low; underbaked.
Too dark:	Oven temperature too high; overbaked.
Soggy lower crust:	Pastry overhandled; too much filling; filling too moist; pastry soaked before baking starts; pie placed too high in oven; oven temperature too low; uneven oven heat.
Crust thick, brittle burns easily:	Too much fat; pastry rolled too thin.
Pastry shell blisters:	Pastry fitted too tightly in pan; not pricked enough; too slow oven.
Shrinks in pan:	Wrong proportion of ingredients; pastry overhandled when fitted into pan; pastry stretched tightly in pan; oven temperature too low.
Poor flavor:	Wrong proportion of ingredients; poor quality ingredients.

BREADS AND COFFEE CAKES

Working with bread doughs can be the most fascinating and rewarding experience for any girl. Unfortunately, too many people never bake bread and do not know the feeling of putting life into a dough as it ferments and bakes into delicious table fares.

Kinds of Doughs

Doughs are of two kinds, lean doughs and rich doughs. Lean doughs are made of just the basic ingredients for bread -- flour, yeast, salt, a little sugar and shortening. This makes good pan de sal, pan Americano, French breads and the crusty bread varities. Rich doughs contain added ingredients such as more sugar, butter, nuts, fruits, eggs and condiments. Milk is often used too. This dough gives rise to rolls, coffee cakes and the sweet varieties.

Methods of Mixing Doughs

There are three ways to mix bread -- straight dough method, sponge dough method and the "no knead" method. The straight dough method uses all of the ingredients together at one time to make the dough. This is kneaded and set aside to rise. The sponge dough method involves mixing part of the liquid, flour and all of the yeast to make a soft mixture. This is set aside to rise until bubbly (levadura). The rest of the ingredients are added and the mixture is treated like a straight dough. The "no kead" method is faster because breads are made from a batter instead of a dough. Kneading and shaping are eliminated. However, the products are not as fine in texture and shape as the kneaded doughs. For successful bread making it is important to understand some principles in making good breads. Let us look at the way the ingredients work together to produce that good looking, good smelling, good tasting loaf of bread.

Flour is the primary ingredient in bread. When mixed with liquid the proteins, gliadin and glutenin unite to form gluten -- the substance that gives framework to bread doughs. The strength of the gluten strands determine the quality of bread. Eggs are nutritious but costly ingredients for bread. Eggs are good emulsifiers. They give more structure to the dough, permitting it to expand further for a higher and lighter product. The fat in egg yolk also aids in retaining freshness of bread.

Measuring The Ingredients

It is important to measure the ingredients accurately to get standard products and efficient use of materials.

Different flour in different localities need varying amounts of liquid and this should be considered in baking. Keep a record of the quantity of flour used each time bread is made to find out which measure produces the best result from the flour available in your area. You will soon learn to judge the correct amount of liquid to add by the consistency of the dough and the way it handles.

Some Words About Bread Baking

Strong flours (bread flour) need extra longer periods of mixing, less yeast and more fermentation time than weak flour (cake flour). This is because bread flour contains more gluten that needs to be conditioned in the fermentation process. If too much yeast is used, the fermentation peak will be reached before the gluten has been properly conditioned and this results in tough and robbery bread.

Conditioning refers to the mechanical development of gluten during mixing and fermentation. This makes gluten more elastic and allows the dough to expand during the first 10 minutes of baking. It gives more volume to the bread. The "expanding during the first 10 minutes in the oven" is referred to as oven spring.

An unconditioned dough is hard to roll and mold because it is tough and resistant to rolling. The gluten has not been properly developed to be elastic for the process. More time is needed to perk up the dough into a luscious loaf. This is dependent on the amount of protein in flour. Bread flour which contains the greatest percentage of protein is best but all purpose flour contains enough protein to produce good bread. Strong gluten withstands the rigors of mechanical agitation and makes the dough pliable for rolling, molding and kneading, and elastic to enable it to hold gases better. This is what makes good bread structure.

Yeast is used to leaven bread because of its remarkable ability to convert sugar into alcohol and carbon dioxide in a process known as fermentation. It is responsible for the life-like activity in bread making. Yeasts, whether dried or compressed, should be softened in lukewarm water to activate them. Care should be taken in the use of heat on yeast. Too much heat will kill the plant and a cool temperature will slow the leavening action. At best, dry yeast must be softened in water at 105°F (warm water), while compressed yeast at about 80°F to 90°F (lukewarm water).

Salt imparts the desirable flavor of bread. It also controls fermentation. The more salt in the dough, the longer the fermentation time. The absence of salt causes quick rising and poor flavor. Salt and shortening should not be added directly to the yeast solution. This weakens the yeast.

Water is generally used as the liquid ingredient. Milk, however, will increase the nutritive value of baked goods and contribute to good texture and flavor. The liquid ingredient acts as a solvent for the other ingredients in the dough. It hydrates the flour, causing it to swell and allow substances to penetrate.

Sugar when used in bread doughs acts as food for the yeast. It is best to add sugar to the water and yeast solution and let stand for 5 minutes before adding to the dough.

Basic Lean Dough Recipe

(for loaf and Hearth Breads)

1 1/2 cups tap water
1 tbsp. dry yeast
5 tbsp. sugar
2 Tsp. salt
4 cups A.P flour
2 1/2 tbsp. shortening

Procedure:

Straight Dough Method

1. Measure ingredients.
2. Divide water into two parts. In one part, sprinkle dry yeast and let stand to soften. To the remaining half, add sugar and salt. Stir.
3. Place flour in a large mixing bowl. Pour in the liquid mixtures then mix thoroughly to develop the gluten Brush margarine to the dough a little at a time, while kneading until all the shortening is used.
4. Knead thoroughly (about 20 minutes) until dough is smooth and elastic.
5. Round into a smooth ball. Place in a greased bowl and let stand covered with a damp cloth for 45 to 60 minutes or until doubled.
6. Punch dough by pressing off the gasses with a rolling pin then remolding it into a ball. Put back in the greased bowl and rest for 20 more minutes.
7. Sheet out with a rolling pin then form to a loaf. Seal ends securely then let stand in a warm place to rise. This may take about 50 to 60 minutes. Test for doneness by lightly touching the dough with a finger after 50 minutes of standing. If the finger leaves a dent, the dough is ready to bake.

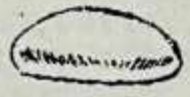
8. Bake at a moderately hot oven (350°F or 375°F) for 1 hour.

9. Make 1 large or two small loaves of bread.

Sponge-Dough Method

1. Dissolve yeast and sugar in lukewarm water.
2. Mix part of the flour in the recipe (about 1½ cups) with the liquid and yeast mixture. Blend well and let rise in a warm place until bubbly and spongy in appearance.
3. Add salt, shortening and the rest of the flour to make a stiff dough. Knead well. Place in a greased bowl and let rise in a warm place until double in size (about 1 1/2 hours).
4. Punch down and let rise again (about 30 minutes).
5. Roll out and shape into a loaf. Place in a greased loaf pan. Let rise until doubled (about 1½ hours). Bake in hot oven, 400°F, for 40 to 45 minutes.

Variations for Lean Recipe



Pan de Sal

Follow basic recipe to step 6. While the dough is rising, toast some old bread and grind or pound it into crumbs. Roll out the dough to expell some gas. Make a "baston" by rounding the dough into long, cane-shaped rolls similar to the jelly roll. Press edges to seal. Sprinkle and roll "baston" in bread crumbs. Cut into 1 inch thick pieces with a spatula or straight edged knife. Place on a greased baking sheet. Let rise until double in a cupboard or inside an unlighted oven, 35 to 40 minutes. Bake in hot oven (450°F) for 15 minutes.

French Bread

Follow basic recipe to step 6. Cut the dough into two pieces. Mold the bread by flattening the dough, to expel some gas, then fold over and roll with the thumbs and palms of your hand until a tight strand, that tapers at the ends is formed. Seal the edges tightly to form a closed seam. This is important to prevent opening during proofing and baking. Place the bread on a greased baking sheet, two inches apart. Cut diagonal slits on top of bread about 4 inches apart. Brush with water and proof, or let rise for 1 to 1½ hours. Bake in hot oven 430°F to desired doneness of the crust, 35 to 45 minutes. The bread is baked when it gives a hollow sound when tapped.

NOTE: Smaller breads may be formed if desired.

Clover Leaf Rolls

Follow basic recipe to step 6. Grease muffin tins. The size of the muffin cups will determine the number of rolls from the recipe. Roll out the dough to press out gas. Cut into pieces and mold into round balls about the size of a ping pong ball. Smaller if the muffin cups are small, Make allowances for rising space in the cups. Place 3 balls into each muffin cup. Let rise for 20 minutes, then brush with eggwhite or water. Let rise again about 30 minutes before placing in the oven to bake. Bake at 350°F until golden brown (about 15-20 minutes).

Salt Sticks

Follow basic lean recipe to step 6. Roll out into a sheet about 1/2 inch thick. Cut into 1/4 inch wide strips to resemble sticks. Place on a slightly greased cookie sheet. Proof, or let rise, for 10 to 15 minutes. Mash pieces of garlic and cook in 1/2 cup butter. Brush the sticks with the garlic flavored butter after baking.

Crescents

Follow basic recipe to step 6. Divide in two pieces and shape into balls. Roll each ball into circular 1/2 inch thick sheet. Cut pie-shape wedges and roll each cut piece, beginning at the wider side towards the tapered end. Curve into crescent shape on a greased baking sheet. Let rise until doubled about 45 minutes. Bake in 350°F oven for 15 to 20 minutes.

Fantans

Follow lean dough basic recipe to step 6. Roll dough into this rectangular sheet. Brush with melted butter or margarine. Cut dough in strips about 1 inch wide and stack 6 or 7 strips together. Cut stacks of strips into 1 1/2 inch long pieces. Place in greased muffin pans cut side up. This will allow the cut sides to spread during proofing and spread and flake during baking. Let rise until double (about 30 minutes) and bake at 400°F until golden brown. Remove rolls from the tins while still warm. It is good to brush the top of the rolls with melted butter as soon as they come out of the oven.

Basic Sweet Dough Recipe

5 cups sifted all purpose flour
1/4 cup water
4 tsp. dry yeast
1/4 cup shortening
1 cup milk
1/2 cup sugar
2 eggs
1 tsp. grated calamansi rind if desired
4 tsp. dry yeast
2 tsp. salt

Measure 5 cups sifted flour into a mixing bowl. It maybe easier to sift large quantities of flour in a bowl than measure the needed flour from there. Spoon the sifted flour carefully into the measuring cup, taking care that it is not rapped on the table. This packs down the flour and the ingredient will come much more than is necessary.

Soften the yeast in warm water. This will dissolve the yeast to evenly distribute the cells in the dough during mixing. Use lukewarm water for compressed yeast about 80°F. to 90°F. to 115°F. Care must be taken that the temperature is just right so as not to kill the yeast.

Combine melted shortening, scalded milk, and sugar in a mixing bowl. Stir thoroughly until the shortening and the sugar dissolves.

When using fresh milk, scald milk to inactivate the enzyme that causes slackening of the dough. Evaporated milk has been pasteurized and need not be scalded, however, use only 1/2 cup evaporated milk and dilute with 1/2 cup water to make whole milk. Dry milk is added to the dry ingredients and water substituted for the liquid volume.

Add two cups of flour and stir. This will assure a cool batter before yeast is added. Mix well to start developing the gluten. Gluten forms the structure of baked goods. It also holds the leavening gas which causes doughs to rise.

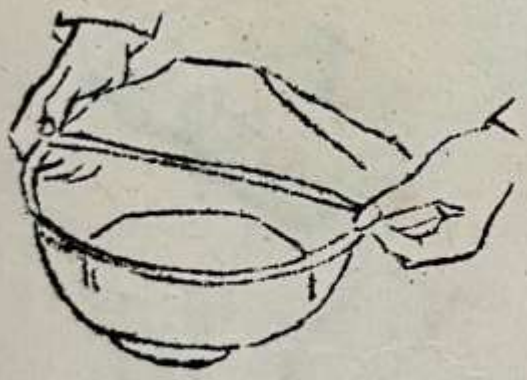
Now, add the yeast. Stir the softened yeast and water to mix well, then scrape the bowl to be sure all is added to the batter. Mix well.

Add the eggs. If calamansi juice is used, pour it in. Beat well again.

Different flours absorb slightly different amounts of liquid. The remaining flour may therefore be slightly more or less than is required. Stop adding flour as soon as the dough is stiff enough to handle and clings together. Flour added to the dough after this may cause dark streaks in the bread or rolls and tend to coarsen the texture of the product.

Turn the dough out into a floured board. Dust your hands lightly with flour to prevent the dough from sticking to them.

Knead the dough thoroughly. This helps develop the gluten and in mixing the ingredients well. Kneading consist of folding the dough over itself, pushing it lightly with the heel of the hand, folding it over and pushing it repeatedly until the dough feels smooth and satiny. A well kneaded dough holds the leavening gas in its meshwork causing it to rise. An under developed dough lets go of the leavening gas and makes poor baked products. Kneading may take 10 to 15 minutes.



Place the dough in a greased bowl. Grease the top surface of the dough lightly so it can stretch as it rises. This may be done by brushing the surface lightly with fat or rolling the ball of dough around the greased bowl. Cover with clean towel and set in a warm place away from drafts. Let rise until double, about 1½ hours.

Test for lightness of dough by denting it with your fingers. If the finger dent remains, the dough is ready to be shaped into the various rolls and coffee cakes.

Punch down by plunging your fist into the center to force out some of the gas to break the big gas pockets into smaller ones and bring in a new supply of oxygen to the yeast cells.

Turn the ball of dough out onto the slightly floured board and divide into desired portions. A third or a half of the dough will make an average coffee cake. Cover the dough with a clean towel and let rest for 10 minutes before shaping. It will be much easier to handle and will result to better looking rolls and coffee cakes.

RECIPE VARIATIONS FOR BASIC SWEET DOUGH

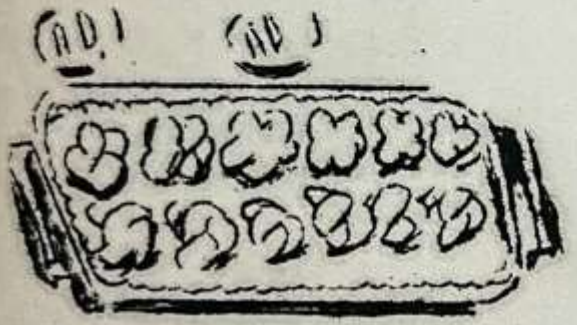
Clover leaf rolls are made by cutting off small portions of dough and shaping them into balls. Be sure your hands are well greased in making rolls. Place three small balls in each greased muffin cup. Grease the surface lightly. Set aside in a warm place to rise until double (about 45 minutes.) Bake in a moderately hot oven (350°F.) for 20 minutes.

These same balls can be made into a delicious coffee cake. Simply fill a greased loaf pan half full of the small balls to make a Caramel Bubble Loaf.

Cover the balls with caramel glaze which is prepared by combining ¼ cup dark corn syrup, 1 tablespoon melted butter or margarine, ½ tsp. vanilla extract. Pour over dough balls and let rise until doubled (about 1 hour). Bake in a moderately hot oven (350°F) 35 to 40 minutes. Let stand in pan for 5 minutes before turning out.

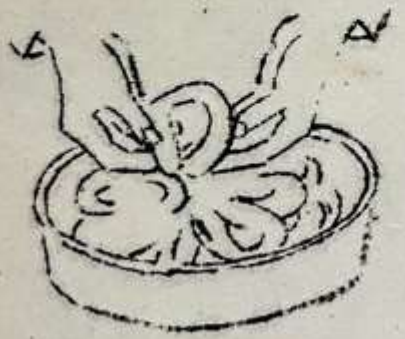
Served with tea or coffee, this coffee cake makes a party out of a Sunday family merienda.

If the basic dough is rolled out into 6 inch long strips, bowknots and rosettes can be shaped. Simply tie the strips of dough like an ordinary knot with loose ends to form bow-knots. For rosettes, bring one loose end of the dough through the center as illustrated and the other over the side.



Place these rolls on greased baking sheets, grease the surface lightly and let rise until doubled, about 45 minutes. Bake in moderately hot oven (350°F.) for 20 minutes. These rolls help glamorize simple salads and luncheon menus.

Roll out longer strips of dough about 8 inches long and 3/4 inch in diameter. Arrange the first 6 in "U" shaped pieces around the outside of a greased 9 inch round pan. Arrange the remaining six rolls in oval shapes so that the ends meet and place them in the center.



Pour a honey topping over all the dough. The topping is made by creaming ¼ cup butter or margarine and 2 tbsp. honey. Add an unbeaten eggwhite and 1 cup confectioner's sugar to the creamed mixture, blending thoroughly. Set the coffee cake in a warm place to rise about 45 minutes. Bake in a moderately hot oven (350°F.) for about 25 to 30 minutes.

Note: This coffee cake may be baked without the honey topping. Simply brush with sugar as for ensaymadas.

This coffee cake should label you as an artist. This is called an "Orange Rosette Coffee Cake". Roll out slightly larger strips of dough about 18-20 inches long. Sprinkle a mixture of 1/4 cup sugar, 1 tbsp. grated lemon or calamansi rind and 1/4 cup chopped nuts. Roll the dough strips in the mixture then braid the three together starting from the center.

Coil the braided strips of dough into a well-greased 9-inch round pan loosely. Sprinkle the remaining orange-sugar-nut mixture on top. Let rise until doubled, about 45 minutes. Bake in a 350°F. preheated oven for 25 to 30 minutes.

When cool brush with thin confectioners sugar and serve.

The famous "Parker House Rolls" are made from this basic dough recipe. Roll the dough out 1/4 inch thick. Brush with melted butter or margarine then cut with a large round biscuit cutter. Make a depression just off the middle of the circle and fold the dough like a pocket book. One side should be longer than the other and this side should fall underneath like pouting lips. Place in greased baking sheets and let rise until doubled, about 45 minutes. Bake in a moderately hot oven for 15 to 20 minutes.

Basic Beaten Batter

Batter or "No Knead" Method

2 tsp. yeast (compressed or dry)
1/4 cup warm water (105°-115°F.)
1 cup milk, warm
1/2 cup shortening or oil
1/4 cup sugar
2 cups sifted all purpose flour
1/2 tsp. vanilla extract, if desired.

Desired filling or topping; butter or margarine, melted.

1. Soften yeast in 1/4 cup warm water.
2. Measure shortening and sugar into a large mixing bowl. Stir in warm milk until shortening and sugar dissolve. Cool to lukewarm.
3. Stir in 1 1/2 cup flour and beat until smooth, about 1 minute by electric mixer or 150 strokes by hand.
4. Beat in yeast mix, vanilla and eggs. Mix well.
5. Add more flour to make a stiff dough. Beat until smooth and elastic (about 1 minute by mixer and 150 strokes by hand).
6. Cover and let rise in a warm place until light and bubbly (about 1 hour). Stir down.
7. Form into rolls or coffee cakes using desired fillings or toppings.
8. Cover and let rise in a warm place until doubled (about 30 minutes). Bake 20 to 30 minutes at 350°F or until golden brown.
9. Immediately remove from pans and brush with butter.

STANDARD SCORE SHEET FOR YEAST BREADS AND ROLLS

Name of Recipe _____

Method _____ Judge _____

		Good (3)	Fair (2)	Poor (1)
Outside Characteristics:				
Shape:	Well-proportioned; symmetrical; rounded top.			
Size:	Large but not airy in proportion to weight.			
Color:	Even, rich golden brown.			
Crust:	Tender; crisp; even thickness; free from cracks.			
Inside Characteristics:				
Color:	Creamy white; free from streaks.			
Grain:	Fine; thin-walled cells, evenly distributed.			
Texture:	Tender; soft, slightly moist.			
Flavor:	"Wheaty", sweet, nutty.			
Score:	(Maximum -- 24)			

Comments:

CAUSES OF POOR QUALITY

Outside Appearance

Poor shape:	Improper shaping of loaf; too much dough for pan; insufficient rising time.
Too small:	Too much salt; not enough yeast; insufficient rising period; oven temperature too high.
Too pale:	Not enough sugar; temperature of dough during mixing and rising too high; oven temperature too low.
Too large:	Not enough salt; too much yeast; rising period too long; oven temperature too low.
Too dark:	Too much sugar; insufficient rising time; oven temperature too high.
Uneven color:	Improper shaping of loaf; incorrect placement in oven.
Tough:	Not enough shortening; insufficient rising time; overbaking.
Too thick crust:	Crusting of dough during rising time; oven temperature too low; overbaking.
Cracks:	Crusting of dough during rising; cooling loaf too quickly.
Blisters:	Improper shaping of loaf; temperature of rising too low; rising time too long.
Lack of shred:	Overkneading; rising time too long.
"Flying" top Crust: (air space beneath crust)	Sugar proportion wrong; dough too stiff; insufficient rising time; crusting of dough during rising; overkneading.

Inside Appearance

Poor color:	Too much yeast, temperature of dough during mixing and rising, too high; rising time too long; oven temperature too low.
Streaks:	Crusting of dough; improper mixing of dough; too much flour used during kneading and shaping of loaf.

Coarse:	Dough too soft; temperature of dough during mixing and rising too high; rising time too long.
Uneven:	Dough too soft; too much flour used during kneading and shaping; improper punching and shaping.
Poor texture:	Too much flour; wheat flour substitutes; temperature of dough during mixing and rising too high; rising time too long; overkneading.
Flavor	Wrong proportions of ingredients; temperature of dough during mixing and rising too high; rising time too long.

C A K E S

Cakes are classified into two categories according to their ingredients. Those whose recipes call for fats are classified as shortened cakes and those that do not use any fat are unshortened.

Methods of Mixing

Shortened Cakes:

1. Conventional method - fat and sugar are creamed together to incorporate air and increase the pliability of the fat. Sugar is added gradually and the eggs either whole or separated, are beaten in. The dry and liquid ingredients are added alternately to the mixture, beginning and ending with the dry ingredients.

2. Quick method - flour, sugar, shortening and part of the milk are blended either by an eggbeater or an electric mixer. The remaining milk is added to the flavorings and eggs, and is poured into the batter and beaten again. Only one bowl is used in this method.

3. Chiffon method - the eggyolk, oil and other liquid ingredients are placed in a bowl together. The eggwhites are beaten with sugar into peaks. The liquid ingredients are added to the flour and part of the sugar to make a batter. Then, the beaten eggwhites are folded into the batter. Volume of the cake depends on the amount of air incorporated into the eggwhites during beating.

Unshortened Cakes:

1. Angel Food Cake method - the eggwhites are beaten to soft peaks with part of the sugar in the recipe. Cream of tartar is usually added to stabilize the foam and cause a finer and whiter grain in the finished product. The remaining sugar is sifted with the dry ingredients and folded into the meringue.

2. Sponge Cake method - the sugar and eggwhites may be beaten together or the eggyolk and sugar may be whipped together then added to the beating eggwhite. The important thing to remember is to sufficiently beat the eggs before folding with the flour mixture.

Cake Recipes Illustrating the Various Mixing Methods:

Shortened Cakes:

Conventional Method:

Batter Cream Cake

1/3 cup butter
2 eggs, whole
2 tsp. baking powder
1 tsp. vanilla
1 cup sugar
2 cups sifted cake flour
1/3 tsp. salt
2/3 cup milk

Procedure:

1. Cream butter, add sugar, beat well.
2. Add eggs one at a time, beat well.
3. Add vanilla to milk.
4. Alternately, add dry ingredients to egg mixture. Blend until smooth.
5. Pour into 9 x 11 inch greased pan.
6. Bake in a moderately hot oven (350°F) for 1 hour.

Banana Cake

2 1/2 cups sifted cake flour
2 eggs, whole
1/2 tsp. baking powder
1/2 cup sour milk (add 1½ tsp. calamansi juice to 1/2 cup milk)
1 1/2 cups sugar
3/4 tsp. baking soda
1/2 cup shortening
1/2 cup mashed banana
1/2 cup chopped nuts

Procedure:

1. Cream butter; add sugar gradually, beat.
2. Add eggs one at a time; beat well.
3. Sift flour, baking powder, salt and baking soda together.
4. Add vanilla to milk.
5. Alternately, add dry ingredients and liquid ingredients plus nuts and bananas to egg mixture. Blend until smooth.
6. Place in a greased loaf pan, 4 1/2 x 9 inches.
7. Bake in a moderately hot oven (350°F.) for 1 hour or until golden brown.

Chiffon Cake Method

Orange Chiffon Cake

2 1/4 cups sifted cake flour
3 tsp. baking powder
1 1/2 cups sugar
1 tsp. salt

1/2 cup salad oil
2 tbsp. grated orange rind
1/2 tsp. cream of tartar
1 cup eggwhites
5 unbeaten eggyolks
3/4 cup juice of an orange and 1 lemon plus water to make up 3/4 cup liquid

Procedure:

1. Sift dry ingredients into a bowl. Make a well in the flour and add in order the following: oil, eggyolks, grated orange rind, and juice and water mix. Beat until smooth.
2. Beat eggwhites and cream of tartar until stiff.
3. Pour eggyolk mixture over eggwhites. Fold gently just until blended. Do not stir.
4. Pour into an ungreased tube pan.
5. Bake in pre-heated 350°F. oven for 60 to 70 minutes or until done.
6. Invert pan. Allow the cake to cool.
7. Loosen with spatula, turn onto rack.

3. Quick Method:

Yellow Cake

2 cups sifted cake flour
2 tsp. baking powder
1 tsp. vanilla
1/2 cup shortening
1/4 tsp. salt
2 tbsp. cold water
2 eggs
1 cup milk

Procedure:

1. Sift all dry ingredients (flour, baking powder, salt and sugar into a large mixing bowl).
2. Blend in shortening and 2/3 cup milk.
3. Beat 2 minutes at medium speed of an electric mixer, or 300 strokes by hand.
4. Blend remaining ingredients.
5. Blend 2 minutes more by electric mixer or 300 strokes by hand.
6. Pour into 2 greased 8 inch round pans.

7. Bake in pre-heated oven at 350°F. for 25 minutes or until cake tester comes out clean when inserted in the center.

8. Cool in pan on wire racks 10 minutes before removing from the pan. Cool completely before frosting.

Unshortened Cakes

Sponge Cake Method

Creamy Sponge Cake

4 egg whites
4 eggyolks
1 tsp. vanilla
1 cup sifted cake flour
1 1/4 tsp. baking powder
1 cup sugar
2 tbsp. cold water
1 1/2 tsp. cornstarch
1/4 tsp. salt

Procedure:

1. Beat eggwhites until stiff but not dry; add 1/2 cup of sugar; beat thoroughly.

2. Beat eggyolk, water and vanilla until lemon colored; add other half cup of sugar; beat until well blended.

3. Fold the 2 mixtures together.

4. Sift all dry ingredients together; fold into mixture with wooden spoon gradually and gently but thoroughly.

5. Pour into a 9 x 11 inch ungreased tube pan.

6. Bake in a noderately hot oven (350°F) for 50 minutes.

7. Cool and turn onto cake rack.

Angel Food Cake Method

Angel Food Cake

1 cup sifted cake flour
1/4 tsp. salt
3/4 tsp. cream of tartar
1/4 tsp. pineapple extract
1 1/4 cups sugar
1 cup eggwhites
1 tsp. vanilla

Procedure:

1. Sift flour and other dry ingredients nine times together.
2. Beat eggwhites with wire until frothy.
3. Add cream of tartar and continue beating until eggwhites are stiff but not dry. Add pineapple extract and beat 1 minute longer.
4. Fold in dry ingredients, about 4 tbsp. at a time, using a wooden spoon.
5. Fold only until dry ingredients disappear in the mixture. Do not handle batter any more than necessary.
6. Pour into an ungreased 8 inch tube pan.
7. Bake in a moderately hot oven (350°F) for 60 minutes or until done.

Quiz: Have the students determine the mixing methods used in the following cake recipes.

Chocolate Layer Cake

2/3 cup shortening
1 1/3 cup sugar
2 eggs, separated
2 tsp. baking powder
3/4 cup milk
1 tsp. vanilla
3 squares (3 ounces) unsweetened chocolate
2 cups sifted cake flour
1/2 tsp. salt

Procedure:

1. Cream shortening, vanilla and half of the sugar together until light and fluffy.
2. Blend in chocolate and add 2 eggyolks.
3. Sift together flour, baking powder and salt.
4. Add to creamed mixture in three portions, alternately with milk in two portions.
5. Beat 2 eggwhites stiff and add the rest of the sugar slowly to the eggwhites, beating constantly until glossy. Fold into the batter.
6. Bake at 350°F. (moderately hot oven) 30 to 35 minutes or until cake pulls away from the side of the pan and top is springy to touch.

White Layer Cake

1/2 cup shortening
1/2 tsp. banana extract
2 cups sifted cake flour
1/2 tsp. salt
3 eggwhites
1/2 tsp. vanilla
1 cup sugar
2 tsp. baking powder
3/4 cup milk

Procedure:

1. Cream shortening, flavorings and half of the sugar together until very light and fluffy.
2. Sift dry ingredients flour, baking powder and salt together.
3. Add to creamed mixture in three portions alternately with milk in two portions.
4. Beat eggwhites until stiff and add the rest of the sugar slowly.
5. Turn into 2 greased 8 inch round layer pans or one 8 inch square loaf pan.
6. Bake at 375°F., moderately hot oven, until cake draws away from the side of the pan and top is springy to touch. (about 25 minutes) Bake for 30 minutes.

Chrysanthemum Cake

3 ripe medium size mangoes
1/3 cup corn syrup
2 tsp. baking powder
1/2 tsp. baking powder
1/2 tsp. salt
1/3 cup shortening
2/3 cup sugar
1/4 cup brown sugar
1 1/3 cups cake flour
2 eggs
1 tsp. grated dayap or calamansi
1/2 cup milk

Procedure:

1. Grease an 8 inch round pan (at least 1 inch deep) generously with butter or margarine.
2. Pre-heat oven at 350°F.
3. Cut fresh or canned ripe mangoes into uniform wedges and arrange them over the syrup radiating from the center to resemble a chrysanthemum. Sprinkle with brown sugar.
4. Place in pre-heating oven while preparing the batter.

5. Sift together flour, baking powder and salt.

6. In another bowl, cream shortening gradually add sugar and unbeaten eggs.

7. Add grated rind of lemon or dayap.

8. Add dry ingredients alternately with milk beat after each addition.

9. Spoon batter carefully over prepared pan.

10. Bake in moderate oven (350°F) oven for 45 minutes.

11. Carefully turn out into a serving dish. Serve warm.

Icings

Icings are sweet coverings or coatings in which sugar is the predominant ingredient. The materials used and the manner in which they are mixed determine the type of icing.

Confectioners sugar or powdered sugar is highly refined and is primarily used in the preparation of flat icings and buttercream. A straight method is used in mixing them. This sugar gives smooth icing without the gritty texture of coarser sugars.

Granulated sugar is used for icings that are made into syrup before adding to the other icing ingredients. This is widely used in fondant preparations in which sugar, water, glucose or corn syrup and invert sugars are boiled about 238°F. to 240°F. then cooled to 120°F. before it is worked into a smooth icing. This is sometimes used as a base for other types of icings.

Type and Method of Preparation

Flat Icing - Sugar, water, corn syrup and flavoring plus a small amount of fat are warmed to a thick paste about 110°F. in a double boiler. The use of a double boiler prevents scorching of the mix and loss of gloss of the icing when it cools. Water should not be used to cool icing or to soften it. This makes the mixture runny, sticky and unmanageable. To soften icings, rewarm in a double boiler.

Creamed Icing - Fat, confectioner sugar, milk powder, eggs, water, salt, flavoring and a stabilizer are used as follows:

- cream dry ingredients with the shortening
- add eggs gradually and cream well
- add water and flavoring last

Creaming incorporatesair into the mix. This gives good volume and texture to the product. One important point to consider in creamed mixtures; the temperature of the ingredients and the atmosphere greatly effect the creaming ability of fat. For best results, always have your ingredients at room temperature about 70°F. for fat. Solid or cold fat is not plastic enough to hold air and warm fat is too soft to tolerate friction during creaming. Fat temperature should not exceed 75°F. to be functional.

Hydrogenated fats have better blending ability than butter. They are more economical and give more luster, volume and texture to icings. However, butter imparts a delicious creamy flavor that tastes and smells good. A mixture of hydrogenated fat and butter should give maximum volume and luster.

Combination Type Icing - This type uses both flat and creamed icing procedures. The flat icing is heated together with the eggwhites to a 110°F. and are whipped to a thick blend. Fat and the remaining sugar are creamed until light and then added to the eggwhites. This adds to the lightness of the icing. It is recommended that a wire whip be used in blending the eggwhites and fat to reduce loss of air cells and for thorough blending.

In adding syrup to whipped eggwhites, the syrup should be boiled to approximately 235°F to 238°F. and then poured into the whipping eggwhites in slow steady stream at medium speed, to prevent "balling". High speed may be used at the end of the mixing process when the ingredients are mixed.

Icing Recipes

Butter Icing

2 cups confectioner sugar
4 tbsp. butter
1 tsp. vanilla or flavoring
1 tbsp. milk
1 eggyolk

Cream butter and 1/4 cup sugar together.
Stir in unbeaten eggyolk and flavoring.
Add remaining sugar and cream thoroughly adding milk alternately as the icing thickens.
Covers 1 two-layer cake.

Variations:

Mocha - Sprinkle 1 tbsp. powdered coffee as the mixture beats instead of vanilla.

Orange - Substitute 1 tbsp. orange juice and 1 tsp. orange rind to the vanilla flavor.

Chocolate - Melt 1 square unsweetened chocolate and beat into mixture.

Pineapple - Drain 1/4 cup crushed pineapple and beat into icing.

Sea Foam Icing

1 1/2 cup granulated sugar	2 eggwhites
1 tbsp. corn syrup	1 tsp. vanilla
1/2 cup cold water	1/4 tsp. cream of tartar

Mix all the ingredients except eggwhites in a small sauce pan. Set over rapidly boiling water stirring constantly until the sugar dissolves. Bring to boil until the syrup dropped in cold water to forms to a soft ball (238°F in the thermometer). Remove the mixture from the water bath. Place the eggwhites in a small pan or bowl. Set in the water bath and beat a small pan or bowl. Set in the water bath and beat quickly until stiff. Warm eggwhites froth faster and better. Remove from water bath and continue beating while pouring the hot syrup in a fine stream. Add the flavoring last. Beat until stiff enough to spread. Will cover 1 two-layer cake.

Caramel Icing

1/2 cup butter
1/2 cup brown sugar
1/4 cup milk
1 3/4 cups confectioners sugar
1 tsp. vanilla

Melt butter in a double boiler. Add brown sugar and milk and cook until sugar dissovles. Stir mixture while boiling. Cool. They beat in confectioners sugar to spreading consistency. Stir in flavoring.

Procedure in Icing Cakes

1. Determine the height of the cake.

2. Level the layers by removing any high peaks and loose crusts.

3. Cut the layers into equal lengths and sizes. Use a serrated knife. If cake layers are thin, it may be necessary to put two layers together. If the layers are high, they may be cut into 2 or 3 sections and fillings placed between them.

4. Fill in dents and crevices in the layers with jam, jelly, fudge, etc. to make all gaps even for the icing. Press down cake layer gently after putting fillings to make them stick. Be sure the layer is even all around before applying the outer icing.

5. Remove all cake crumbs from the top of the layer and the working area as these may get into the icing and cause lumps.

6. Place the layer cake on a thin cardboard liner, slightly smaller or the same diameter as the cake. Do not use over-sized liners. Place cake in the exact center of the turn table, lazy susan or any surface that can be turned around while putting on the icing.

7. Place sufficient amount of icing on the layer cake to cover the top and sides about 1/8 to 1/4 inch thick. Hold the spatula in an almost flat position with one side slightly tilted. Place the tip of the spatula at the center of the cake, with icing in center and rotate cake with the left hand while the right holds the spatula in steady position. Keep the pressure even. This will spread the icing evenly on top of the cake. Excess icing will fall on the sides. Use this to coat sides thinly, then apply

additional icing so that the entire side surface is covered with about 1/4 inch thick icing. Spread evenly.

8. Place the iced cake on a cake liner with a doily. Garnishings may now be applied. The sides of the cake may be garnished with toasted cake crumbs, light cake crumbs, nuts, glaced fruits, sugar flowers, letters etc.

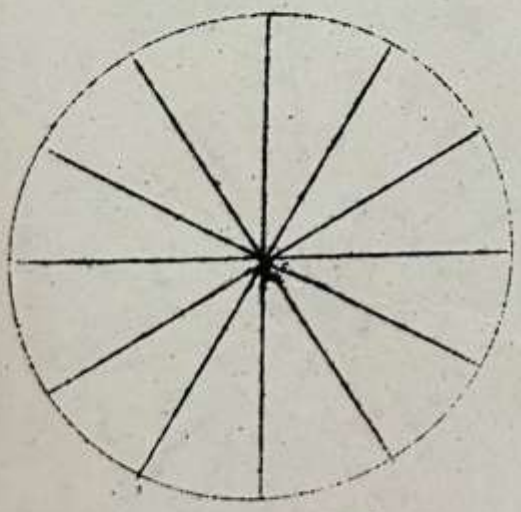
Cutting Guide for Batter Cakes

There are different methods of cutting each kind of cake. The factors to keep in mind are the size and number of servings and the cutting utensil to be used. The size and number of servings depend upon the size and number of layers in the cake. A knife with a sharp straight-edged, thin blade is most suitable for cutting batter cakes. To make a clean cut, dip the blade into warm water before cutting each portion and keep the blade free from frosting and cake crumbs.

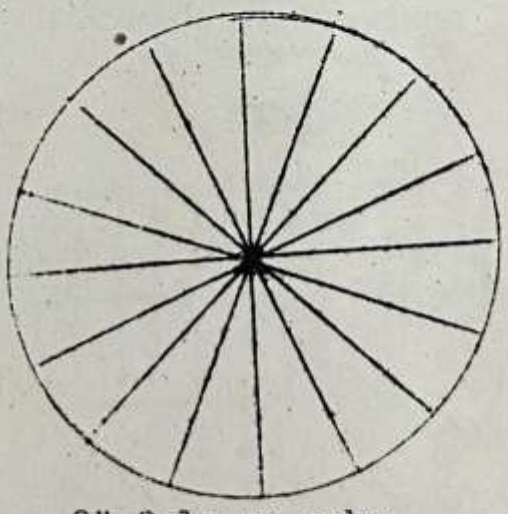
Fruit cake, which also is a batter type cake, may be cut in the same manner. Because of its richness, the size of fruit cake servings generally are smaller than those shown for layer cakes.

The following diagrams illustrate methods of cutting cakes of various sizes and shapes. The average number of servings per cake are given.

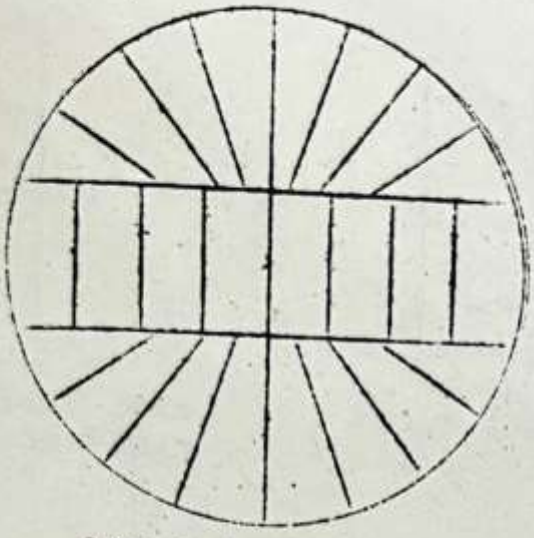
Layer Cakes*



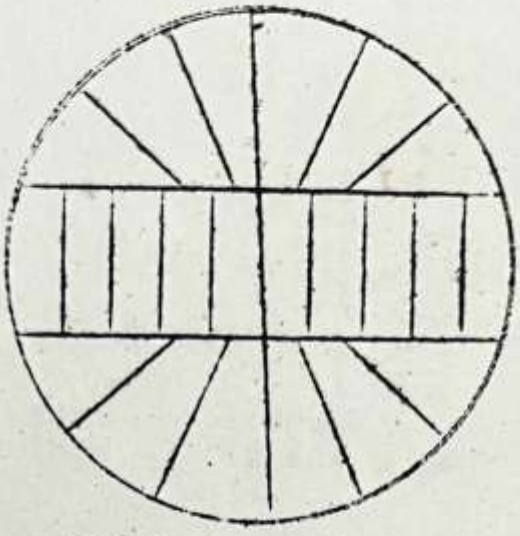
8"- 2 layer cake
Yield: 12 servings



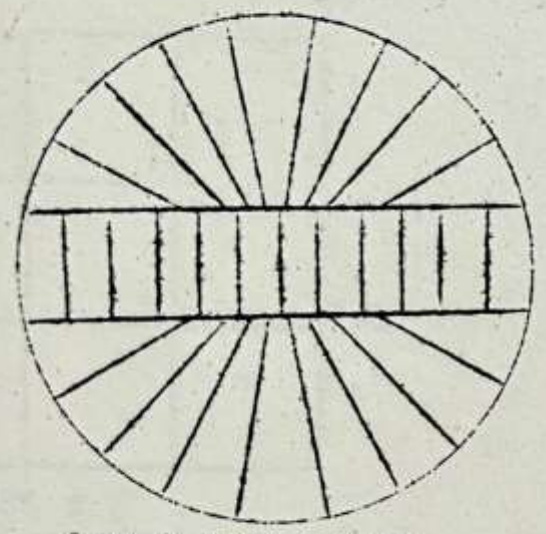
9"-2 layer cake
Yield 16 servings



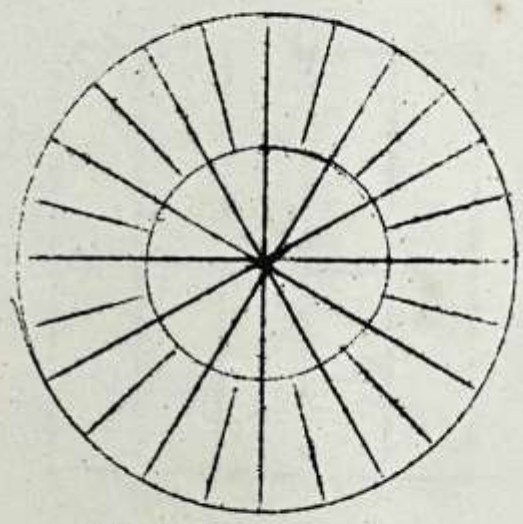
10"-2 layer cake
Yield: 20 servings



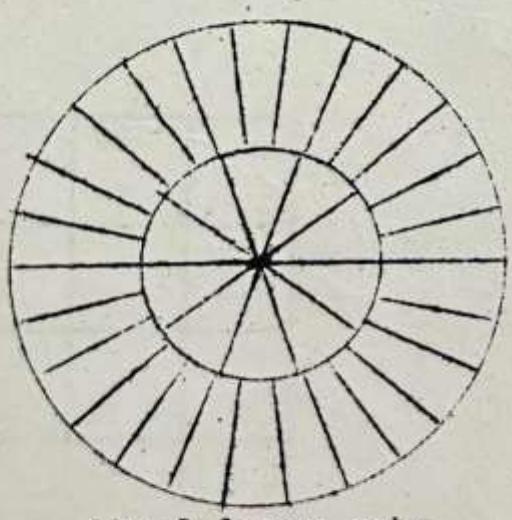
11"-2 layer cake
Yield: 26 servings



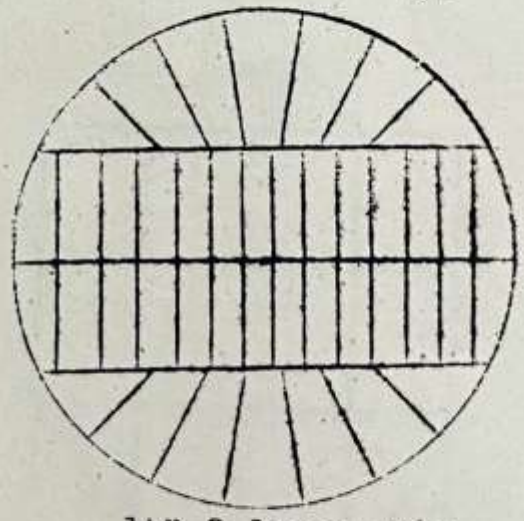
12"-2 layer cake
Yield: 30 servings



12"-2 layer cake
Yield: 36 servings

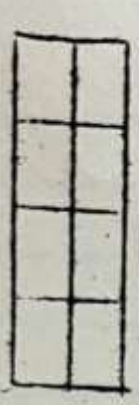


13"-2 layer cake
Yield: 36 servings



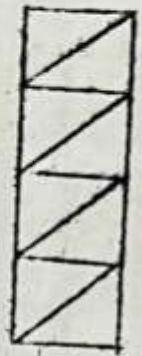
14"-2 layer cake
Yield: 40 servings

LOAF CAKES



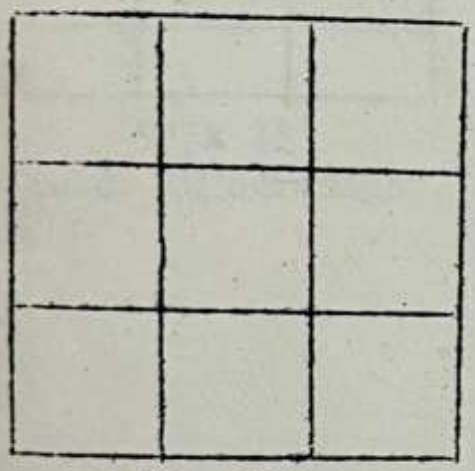
1 pound loaf cake
Yield: 8 servings

1 pound loaf cake
Yield: 8 servings

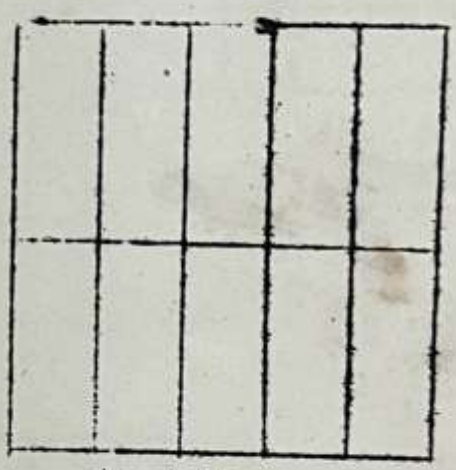


1 pound loaf cake
Yield: 8 servings

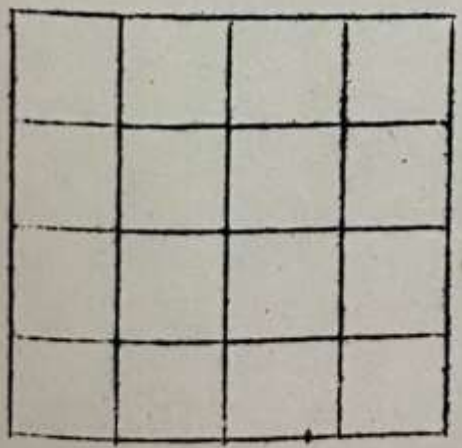
SQUARE CAKES



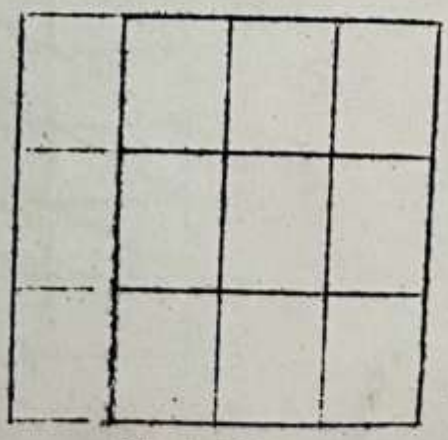
8" x 8"
Yield: 9 servings



8" x 8"
Yield: 10 servings

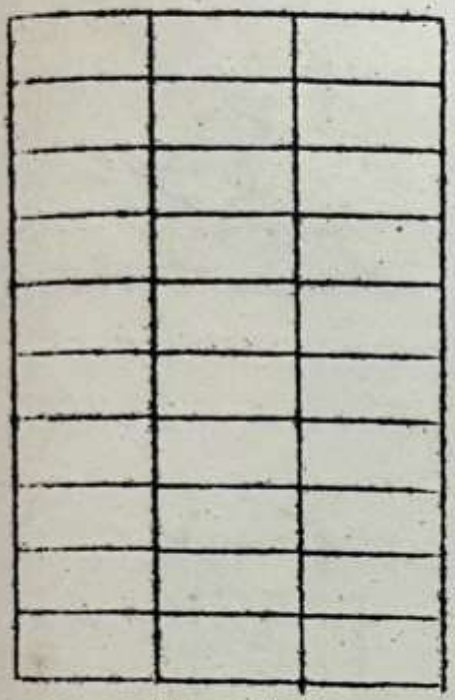


9" x 9"
Yield: 16 servings

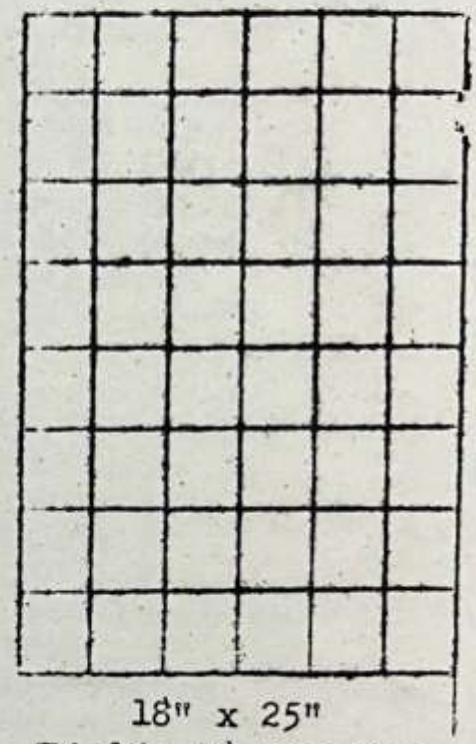


9" x 9"
Yield: 12 servings

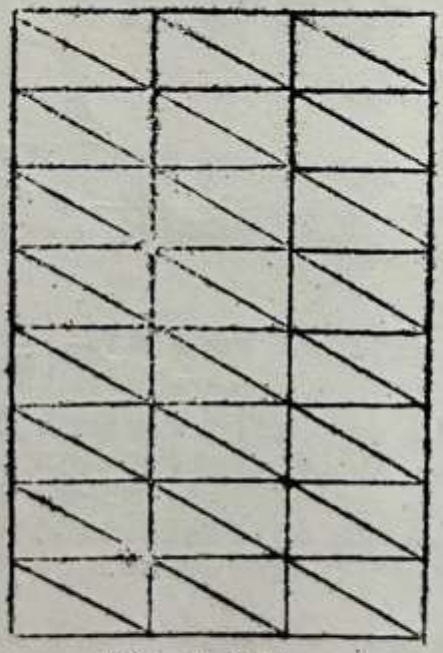
SHEET CAKES



9" x 13"
Yield: 30 servings

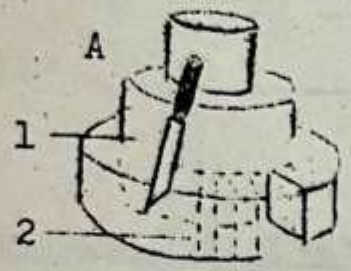


18" x 25"
Yield: 48 servings

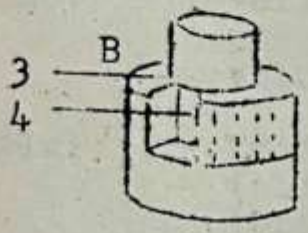


18" x 25"
Yield: 48 servings

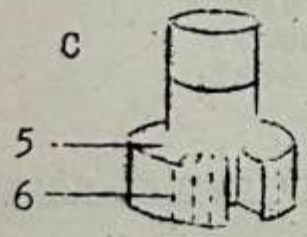
Tier Cakes**



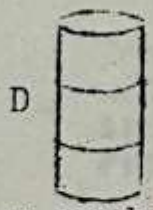
A - Cut vertically through the bottom layer at the edge of the second layer as indicated by the dotted line marked 1; then cut out wedge-shaped pieces as shown by 2.



B - When these pieces have been served, follow the same procedure with the middle layer: cut vertically through the second layer at the edge of the top layer as indicated by dotted line 3; then cut out wedge-shaped pieces as shown by 4.



C - When pieces from the second layer have been served, return to the bottom layer and cut along dotted line 5; cut another row of wedge-shaped pieces as shown by 6.



D - The remaining tiers may be cut into the desired size pieces.

The average number of portions that various sized layers will yield are as follows:

14 inch layer will yield approximately 40 servings.
12 inch layer will yield approximately 30 servings.
10 inch layer will yield approximately 20 servings.
9 inch layer will yield approsimately 16 servings.
8 inch layer will yield approsimately 12 servings.

*Friel, Charles: Adapted from "Friel's Diagrammatic Cake Charts."
**Thelen, Ray: Cutting Wedding Cakes. Bakers' Helper, Vol. 89, May 15, 1948, Cakes and Pastry Section, p. 8.

STANDARD SCORE SHEET FOR FOAM-TYPE CAKES

Name of Recipe _____

Type _____ Judge _____

		Good (3)	Fair (2)	Poor (1)
Outside Characteristics:				
Shape:	Uniform; free from cracks (sponge); slightly rounded top (chiffon).			
Size:	Very light in weight in proportion to size; large volume.			
Color:	Uniform golden brown (chiffon); light brown (sponge).			
Crust:	Tender; free from spots or moist shiny appearance (sponge); cracked on surface (chiffon).			
Inside Characteristics:				
Color:	Uniform characteristic of kind of cake.			
Grain:	Small, uniform, thin-walled cells; no large air spaces, nor compact layer; springy crumb.			
Texture:	Tender; feathery; moist; light; not compact or soggy.			
Flavor:	Pleasing; delicate; uniform.			
Score:	(Maximum -- 24)			

Comments:

Foam-Type Cakes

CAUSES OF POOR QUALITY

Outside Appearance

Pale color:	Underbaked; wrong size pan.
Too brown:	Overbaked; too hot oven; too much sugar.
Poor volume:	Improper baking temperature. Poor quality eggs. Greased pans. Insufficient beating of eggs. Overfolding. Too high or too low temperature of egg while beating. Wrong size pan. Underbaked.
Sunken:	Not inverting pan to cool cake. Removing cake from pan before it is cool.

Inside Appearance

Uneven grain:	Overfolding flour with egg and sugar. Unbeaten egg whites and yolks (sponge) -- egg whites (chiffon). Improper storage after baking.
Coarse grain:	Underfolding.

Texture

Dry:	Overbaked; too little liquid.
Soggy:	Underbaked; undermixed.
Solid:	Too much flour or liquid; insufficient beating of eggs (sponge) or egg whites (chiffon).
Tough:	Overmixed; not enough sugar; overbaked.
Flavor	Poor quality ingredients; wrong proportion of ingredients.

STANDARD SCORE SHEET FOR CONVENTIONAL & QUICK-MIX CAKES

Name of Recipe _____

Method _____ Judge _____

		Good (3)	Fair (2)	Poor (1)
Outside Characteristics:				
Shape:	Uniform; slightly rounded top; free from peaks or cracks.			
Size:	Uniform; light in weight in proportion to size.			
Color:	Uniform golden brown.			
Crust:	Tender; smooth.			
Inside Characteristics:				
Color:	Uniform; characteristics of kind of cake.			
Grain:	Fine; round, thin-walled cells, evenly distributed; free from tunnels.			
Texture:	Tender; velvety; moist -- neither soggy nor crumbly.			
Flavor:	Pleasing; well-blended with no bitterness.			
Score:	(Maximum -- 24)			

Comments:

CAUSES OF POOR QUALITY

Outside Appearance:

Peaked or cracked:	Oven too hot; too much flour.
Pale Color:	Too little sugar; underbaked; wrong size pan.
Too brown:	Overbaked; too hot oven; too much sugar.
Poor volume:	Too much shortening or liquid; wrong size pan; too hot oven.
Sunken:	Too much sugar or shortening; too little liquid; underbaked.

Inside Appearance

Uneven grain:	Too little liquid; undermixed; oven too cool; too much shortening.
Crumbly:	Too much shortening or sugar; undermixed.
Tunnels:	Too many eggs; too little sugar; poorly mixed.

Texture

Dry:	Overbaked; too little sugar.
Soggy:	Underbaked or undermixed; too much shortening.
Solid:	Too much flour, shortening or liquid.
Tough:	Overmixed; overbaked; too little shortening.
Flavor:	Poor quality ingredients; wrong proportion of ingredients.

SOME SELECTED LABORATORY EXPERIMENTS

1. Flour

A. Distinguishing types of Flour

Procedure: Get a sample of all the varieties of flour available in your area. (Cake flour, all purpose, bread flour, ready mixes, donated flour etc.)

Get a handful from each sample and press on your palm. Consider and note differences in feel, color and smell and jot down in the space below.

Flour Variety	Color	Odor	Texture
1. Cake Flour			
2. Bread Flour			
3. All purpose Flour			
4. Ready Mix			
5. Donated Flour			
6. Others.			

B. Protein in Flour (Gluten test)

Procedure:

1. Measure 1/2 cup of flour into a mixing bowl.
2. Add enough water to make a stiff dough. Note the amount of water used.
3. Knead the dough for 15 minutes.
4. Wash the dough until water is clear of starches or wash dough in running water, kneading constantly to remove all starches.
5. Shape remaining mass into a ball and place on a greased baking sheet. The remaining mass is pure gluten - the protein in flour.
6. Bake at 450°F for 1 hour.

Note: Do the same procedure to all the other flour varieties and compare the amount of gluten in each.

Kind of Flour	Weight of 1/2 cup	Amount of water used	Description of gluten bulk
1. Cake Flour			
2. Bread Flour			
3. All purpose flour			
4. Ready Mixes			
5. Donated Flour			
6. Others			

C. Measurement Test

1. Scoop up flour from the bag using an aluminum measuring cup. Level off. Sift once, then measure again. Note difference.

2. Repeat the experiment several times and average the differences. Tap cup with a knife or bang on the table. Note the difference.

3. Why do flour measures vary in the differnet procedures?

2. Oven

A. Rack Placement Test:

Prepare 3 basic cake recipes and bake them at different rack level. Bake on rack placed near top of the oven, in the center and at the lowest or near the bottom. Compare the resulting products.

Rack Position	Texture	Doneness	Crust	Probable Cause
At bottom rack				
Center				
Top				

B. Pan Placement

Prepare basic recipes for muffins. Place two muffin pans on two racks so that they fall in line one over the other. In another oven, bake muffins putting the pans at the center. Place the last two muffin pans in a third oven in alternate positions so that the pan on the top rack is not dirently above the muffin pan

on the bottom rack. Note the difference in the product.

Pan Placements	Texture	Color	Doneness	Probable Cause
Pans in line				
Pan in the Middle				
Pan in Alternate positions				

C. Oven Temperature

Prepare basic recipe for cake using the conventional method. Pre-heat the oven to the recommended temperature, bake one cake. Bake another at a temperature 25° higher than required, another 25° below the recommended heat and the fourth, do not pre-heat the oven. Bake in identical baking pans and compare the results.

Temperature	Volume	Texture	Color	Crust	Tenderness
Required Heat					
25°F below					
25°F higher					
not pre-heated					

3. Handling Batters and Doughs

A. Mixing Techniques:

Prepare basic recipe for muffins.

1. Mix batter until dry ingredients are just moistened. Note appearance of batter. Fill one muffin cup 1/3 full.

2. Stir the rest of the batter 15 strokes and fill another cup.

3. Stir 5 more strokes and fill another cup. Continue stirring at 15 stroke intervals until the whole recipe is used up.

4. Score products and determine the best stage to produce properly mixed muffins.

5. Jot down differences on the card below.

Variations	Appear-ance	Texture	Lightness
1. Dry ingredients just moistened			
2. Stirred 15 strokes			
3. Stirred 5 more strokes			

B. Dough Manipulation

Prepare basic recipe for biscuit.

1. Cut one or two biscuits onto a greased baking sheet.

2. Roll out remaining dough on floured board. Cut another biscuit and add to the biscuits on the baking sheet.

3. Knead remaining dough five times, gently but quickly and roll out in a sheet about 1/2 inch thick. Cut into 1 inch squares and bake as directed in the recipe.

4. Compare results

Variations	External Appearance			Internal Appearance	
	Crust	Shape	Volume	Flakiness	Grain
Dropped					
Rolled					
Kneaded and rolled					

4. Leavening Agents

A. Baking Powder

Place 1 tbsp. baking powder into each of three test tubes. Add equal amounts of:

a) ice water to one test tube
b) warm water (105°F - 115°F) to the next.
c) hot water (200°F - 212°F) into the third.

Hold a lighted match stick over the mouth of the test tube as soon as water is added. Which test tube extinguished the flame first? Record results and observations. How does this affect baking procedures? Oven temperature? Mixing of ingredients?

5. Shortening

Prepare basic pastry recipe using differnt shortenings available in your locality (lard, butter, margarine, oil, etc.).

When using oil, substitute 1/4 cup oil for 1/3 cup fat. Bake pastries on sheets instead of in pie pans for easier comparison of products. Bake according to directions and score according to score sheet for pastry. Record results in the table below.

Shortening	Texture	Color	Flavor	Ease of Preparation	Cost
lard					
vegetable fat					
butter					
margarine					
oil					

6. Ready Mixes

Prepare chiffon cake using recipes on page 76. Note equipment used, time of preparation, cost of ingredients and quality of the product.

Prepare chiffon cake using ready mix. Compare cost of ingredients, preparation time, equipment used and quality of the baked goods.

Record observations on the table below.

Chiffon Cake	Cost	Time	Equipment	Quality
Home Prepared				
Ready Mix				

HOW TO STORE BAKED GOODS

Baked Goods	How to Store	Where to Store	How to Refresh
Bread and rolls general storage	Ideally at room temperature 75° to 85°F in adequate space to prevent crushing.	Relatively dry place well above floor level, in a unit cleaned daily and scrubbed weekly; away from strong odors particularly fish, onions, cabbage, garlic meats, and especially paints and cigarette smoke.	Stale bread and rolls, for all practical purposes, cannot be refreshed for optimum quality. Two or three-day-old bread however, can be used toasted.
Soft-crusted breads, rolls, sweet rolls	In original wrappers moisture and vapor proof to prevent drying out.	See above. Refrigeration to prevent mold growth, accelerates staling. Store in freezer to retard staling in moisture-vapor-proof wrapping.	Frozen goods: Thaw as rapidly as possible or in oven at 325" for 20 minutes. Leave wrapper on for room temperature thawing.
Hard-crusted breads and rolls.	Unwrapped	See above. In areas with circulating relatively dry air. Hard-crusted goods in general have a short shelf life since moisture from the interior migrates to the crust making it soft and tough or "soggy" Can be stored in freezer, wrapped loosely in kraft paper, but keep best when frozen partly baked in vapor-proof wrapping.	Frozen goods: Thaw wrapped as rapidly as possible, recrisp by heating uncovered in a 400°F oven for about five minutes. Should be served immediately.

Baked Goods	How to Store	Where to Store	How to Refresh
Cakes, cup-cakes	Covered or boxed to prevent drying out	Same as for general bread storage Whipped cream, cream-filled cakes, filled cream puffs, eclairs, must be refrigerated. Unsliced or butter frosted, fudge iced, whipped cream cakes can be frozen if wrapped in moisture-vapor-proof paper.	Thaw frozen cakes, cup-cakes, wrapped, at room temperature, use within two days for best quality.
Fruit Cake	In original wrapper and/ or container until served or wrapped in clean cloth for short storage. Cloth can be sprinkled with brandy or cider to keep cake moist and fresh.	Air-tight metal container in cool place.	Steam.
Cookies Crisp cookies	Covered or boxed.	Loosely covered container. May be frozen.	Thaw at room temperature. Heat in open shallow pan in 300°F oven for three to five minutes to refresh.
Soft chewy cookies	Covered tightly.	Air-tight container. May be frozen.	Thaw at room temperature. Heat in open shallow pan in 300°F oven for three to five minutes to refresh.

Baked Goods	How to Store	Where to Store	How to Refresh
Doughnuts Cake type	Covered or boxed.	Same as for general bread storage. May be frozen. Glazed doughnuts do not freeze well.	Thaw as for cakes. Heat in covered steam table pan in 400°F oven for about five minutes to refresh.
Raised type	Unwrapped on racks.	Same as for cake doughnuts.	
Pie Fruit	Covered or boxed.	Cool place or refrigerator to prevent mold growth. Freeze pies unbaked.	Fruit pies will have a fresh-baked flavor when reheated in a 350°F oven for seven to 10 minutes. Frozen unbaked pies are best when baked undefrosted.
Cream, custard, nut with custard base.	Covered or boxed.	Must be refrigerated. Generally do not freeze well after baking. Unbaked pies may be frozen if recipe and ingredients are designed for freezing.	

Storage of Baked Products

Bear in Mind ---

1. The product is as fresh as the goods that you put into the freezer. Do not expect to get a fresh product when you stored a stale bread. Freezing prevents staling but it does not refresh staled foods.

2. Wrapping the foods properly before freezing is important. Wrap securely in a moisture and vapor proof paper, film or foil (except for crusty breads) before putting inside freezer.

3. Quick freeze baked goods. Do not stack them together but have air in the freezer free to circulate and evenly set the food to freeze. Stack products after freezing to save on space at 0°F. This is required because refrigeration strangely, accelerates staling rate.

4. In thawing baked goods, the rule is "once defrosted do not refreeze". It is good to freeze goods by batches. Store quantities that can be used by the family at one thawing to minimize defrosting excesses.

5. Thaw baked goods as rapidly as possible in a warm area with circulating air. This prevents moisture from setting into the baked products causing soggy spots. Soft crusted and sugar coated breads should be thawed in an oven at 325°F for 20 minutes to prevent wet limpy breads.

GLOSSARY OF TERMS

ALBUMEN - the white of an egg.

ALBUMIN - any of the class of complex protein in milk, egg, muscles, blood and other tissues.

ALEURONE - the fine granules of protein present in seeds forming an outer layer in cereals. It comes right next to the bran layer.

ACROLEIN - the yellowish, pungent substance that smells like burnt fat when shortenings are over heated.

ALMOND - the edible nut-like seed of a fruit resembling peach.

ALLSPICE - the berry of a west Indian tree of the Myrtle family. The spice is so called because its flavor seems to combine the taste of several spices.

BRAN - the outer protective covering of cereal grains.

BUTTER - the thick yellowish product that results from churning the fatty portion of milk.

BAKING - to cook by dry heat specially in an oven.

BATTER - thin mixture of flour, milk or any liquid used in making cakes, waffles, etc.

BEAT - to mix by stirring or by striking repeatedly with a utensil such as beating the eggs.

BERRY - any small, juicy, fleshy fruit with seeds such as the strawberry, bugnay, etc.

BLANCH - to remove the skin by scalding.

BUTTERFAT - the fatty part of milk from which butter is made.

BUTTER MILK - the sour liquid left after the butterfat in milk has been removed.

CANAPE - a toasted slice of bread or a cracker spread with spiced meat, sardines, cheese, etc. served as an appetizer, often with drinks.

CHEESE - a food from the curd of milk pressed together to form a solid.

CINNAMON - the yellowish brown spice made from the dried inner part of a tree or shrub of the laurel family.

CITRON - the yellow, thick skinned fruit resembling a lime or lemon but larger and less acid.

CREAM - the oily yellowish part of milk which rises to the top.

CREAM CHEESE - a soft white cheese made of cream or milk enriched with cream.

CREAM OF TARTAR - a white acid crystalline substance used to stabilize egg foam.

CREAM PUFF - a round shell of pastry filled with whipped cream or custard.

Kinds of Cream:

- light cream - sometimes called coffee cream, contains not less than 18 percent milk fat.

- medium or whipping cream contains about 30 percent milk fat.

- Homogenized cream is cream which has been mechanically treated to increase the fat globules by reducing them to finer sizes. The cream seldom or does not whip.

CURRY POWDER - yellowish powder made from turmeric and various herbs and spices used as food seasoning.

CUSTARD - a mixture of eggs, milk, sugar and flavoring either boiled or baked.

CREPE SUZETTE - very thin pan cakes rolled up and sprinkled with sugar sometimes served with a flaming brandy sauce.

CRUST - the hard crisp outer part of bread.

CEREALS - plant seeds containing large amounts of starch belonging to the grass family

CRUMB - the greater inner portion of bread which is soft.

CRIMP - to pinch together the edge of doughs as in pastry making using thumb and forefingers or fork and teaspoon.

CROUTONS - fried cubes of bread for garnishings.

CRULLER - sweet dough strips braided and fried then sprinkled with sugar.

DASH - less than 1/8 of a teaspoon or three drops of liquid.

DREDGE - to sprinkle or coat with flour or similar fine ground ingredients.

DROP-COOKIE - medium soft dough that can be dropped from a spoon to a baking sheet.

DOUGH - flour-liquid mixture which is stiff enough to handle and knead.

DUMPLING - a ball of dough 1 to 2 inches in diameter either steamed, baked or boiled on top of a stew or soup.

DUTCH CAKE - a cake which is baked from biscuit dough and is heavily dotted by fruits. Sugar, spices and melted butter maybe sprinkled on top before baking.

DRIPPINGS - fats rendered in cooking meat such as pork, beef, mutton, etc.

ENDOSPERM - the inner part of the seed, the largest part of a kernel which is principally made of starch.

EMULSION - a mixture of fat and liquid or technically it is the colloidal dispersion of two immiscible liquids.

ENRICHMENT - to add vitamins and minerals in bread, rice, etc. to increase food value.

EXTRACTS - water soluble organic compounds which contain some essence of the fruit or foods from which they were derived. Example: banana extract, pineapple, etc.

EGG ROLL - a mixture of flour, water and chestnut cooked but not browned into small pan cakes then mixtures of bamboo shoots, roast pork, onions, etc. are rolled in. Similar to lumpia.

EMPANADA - an elaborate turn over with a flaky crust and a variety of filling such as fruits or meat either deep-fat fried or baked.

EMULSIFIERS - an additive that permits the dispersion of tiny particles or globules of one liquid in another liquid such as in the preparation of french or mayonnaise dressings.

ESSENCE - the rich extract of meat or vegetable flavors.

EVAPORATED MILK - canned unsweetened milk the water of which has been evaporated (about half or 60% of the water content of the whole milk).

FARINA - a flour or meal from wheat other than durum wheat with the bran and most of the germ removed.

FAT - an oily substance formed in the bodies of animals and found in seeds of certain vegetables which is solid at room temperature.

FLAKINESS - a desirable characteristic of pastry; the tendency of the crust to separate into layers when broken.

FLAVOR - that quality of a substance which gives it a characteristic taste.

FLAVORING - an essence, added to food to give it a characteristic taste or aroma.

FLOUR - the powdery product that comes from milling cereal grains and some root crops.

- bromated flour - white flour bleached with potassium bromate.

- Patent flour - the more refined flour from the endosperm of cereal grains.

- clear flour - the remaining flour after the patent flour has been removed.

- self-rising flour - flour in which baking soda or calcium phosphate and salt have been added.

- Whole wheat flour - finely ground wheat other than durum containing the original constituent of a wheat kernel.

FLUTE - to make a series of indentations or channels such as in pie crusts.

FOOD ADJUNCTS - condiments, spices, etc., that add zest, flavor and interest to foods.

FINGER FOODS - foods that can be eaten with the fingers without soiling such as cookies, cakes without frosting, breads and most sandwiches.

FORMULA - a term in food preparation which denotes a recipe for a dish or mixed foods.

FRUIT CAKE - a cake that may either be light in color without molasses or coloring, containing a variety of dried or candied fruits such as raisins, dates, nuts, and a small amount of wine or brandy. It is stored in tight containers to ripen.

FOLD - mixing a delicately textured ingredient into another by cutting through the mix with a rubber scraper or wooden spoon and gliding over and over.

FRUIT ROLL - fruit is placed in a rolled out biscuit dough and rolled in as in a jelly roll. About 1 inch slices are cut before baking.

GARNISH - to decorate food for better eye appeal. Only edible materials should be used for garnishing.

GREASE - to spread a thin layer of fat or oil over the surface of a baking pan or cooking utensil.

GRIDDLE CAKE - a quick bread made by pouring a very thin batter into a hot griddle pan to brown evenly on both sides. Often referred to as hot cake or pan cake.

GERM - the living substance in plant seeds and cereal grains capable of developing into an embryo. It is rich in vitamins and other food values.

GLACED FRUITS - fruit which has been cooked with sugar, dried, smooth and shiny.

GLUTEN - the elastic substance that comes from a well kneaded dough made up of the protein of wheat flour.

ICE BOX OR REFRIGERATOR COOKIES - stiff cookie dough is rolled, packed firmly in waxed paper and chilled then cut into cookie bits before baking at 425°F oven.

JELLY ROLL - a sponge cake baked in a shallow pan in which jelly is spread on the cake before rolling into cylindrical shape. "pianono".

LARD - fat rendered from pork.

LEAVENING - to make flour mixtures rise with the help of agents such as chemicals, air or steam to produce properly developed and well grained baked goods.

LEAVENING AGENT - a substance that causes flour mixtures to rise making them light and porous.

MARGARINE - emulsified bland fats with a melting point approximating the melting point of butter.

MEALY - coarsely ground and unbolted such as corn meal, oat meal, etc.

MELBA TOAST - thin, dry toast usually served unbuttered.

MIKI - wheat needles containing eggs and soda ash.

MERINGUE - egg whites beaten stiff with sugar.

- 2 to 3 tbsp. sugar per eggwhite - soft meringue to top cakes, pies, etc.

- 4 to 6 tbsp. sugar per egg white - hard meringue for confectioneries.

MILK - the white or yellowish liquid secreted by the mammary glands of female animals which feed the young of the specie.

MILLING - the process of grinding cereal grains into flour or meal.

MOLASSES - a thick dark syrup that results in the process of sugar refinery.

MOLD - to shape or form to desired frame.

MORSEL - a bite size.

MUSTARD - seeds from plants with yellow flowers and slender pods ground into powder or prepared into a paste.

NUT - the dry, one seeded fruit of any of the various trees or bushes consisting of a kernel, often edible, in a hard, woody leathery shell such as cocoanut, peanut; etc.

NOODLES - flat, narrow strips of dry dough usually containing egg and served in soup.

NEMS - non-fat-dry-milk-solids. Skim milk powder with about 1 percent butterfat.

NUTMEG - the hard aromatic kernel of the seed of an east Indian tree which is grated and used as spice.

OIL - greasy substance obtained from plants or animals which are liquid at room temperature. It is usually soluble in organic solvents such as ether but not in water.

OVALBUMIN - the principal protein in egg whites.

OVEN - a compartment or cooking vessel for heating, baking and drying of foods.

PAN CAKE - a thin, flat cake of batter fried in a griddle or a pan.

PARKER HOUSE ROLL - a yeast roll folded in half like a pocket book.

PASTEURIZATION - method of destroying disease causing bacterias specially in milk by subjecting the liquid to 142° - 145°F. for thirty minutes.

PASTRY - an article of food made of flour, flavoring, water and lard that make a crisp tender crust for pies and tarts etc.

PAT - a small lump or mass as in butter.

PASTE - flour-water-flavoring mix used in making rich pastry.

PEANUT - sometimes called ground nut. It grows in pods in the ground and produces several seeds in a pod which are rich in oil and protein. Used in the preparation of peanut butter and confection.

PILI NUT - black husked nut with a rich edible kernel.

PINE NUT - sweet oval shaped seed from the ever green trees with a brown shell and whitish meat where oil may be extracted.

PIZZA - Italian pie with thin spread of cheese, tomato sauce, sausage, mushrooms, etc.

PULVORON - an oval or round shaped mixture of toasted flour, milk powder, sugar and flavoring which crumbles in the mouth when eaten. Usually wrapped in colored Japanese or waxed paper.

POP OVER - a very light, puffy, hollow muffin so called because it rises "Pops" over the muffin cup when cooked.

POPPY SEED - the small, dark seed of a poppy used as flavoring or topping for bread, rolls, etc.

POUND CAKE - a rich cake made with a pound each of its principal ingredients such as flour, butter, sugar, etc.

PRESSED COOKIES - rich cookie doughs which are packed in a cookie press to form a variety of forms and designs.

PRETZELS - a crips slender roll of dough, traditionally twisted by hand into a loose knot and heavily sprinkled with selt before baking. It is sometimes known as a salt stick.

PROOF - to let dough alone after kneading in favorable temperature for a specified length of time to properly condition and develop the gluten preparatory to molding and shaping into the various bread varieties.

PROTEINS - nitrogeneous substances that build and repair worn out tissues and yield amino acids on hydrolysis.

PUFF PASTE - a mixture of strong flour and water layered with shortening to produce layered effect after the dough is rolled into thin sheets.

PUNCH - to puncture dough with the hand to expel air and reduce the air sacs preventing tunnel formations in baked goods. Punching the dough also help supply fresh air to the yeasts for better fermentation.

RENDERING - to extract fat from meat or other sources by heat.

ROLLED COOKIES - cookies which are made from firm doughs that can be rolled out and handled. The dough is cut with a knife or cookie cutter to desired forms and shapes.

ROLL OUT - to flaten dough out into a sheet in preparation to shaping to various forms.

ROUX - cooked mixture of browned flour and fat used to thicken sauces and stews.

SANDWICH - protein or vegetable foods placed between bread slices. A popular handy food preparation for hurried meals.

SESAME SEED - dried, hulled fruit of a tropical annual herb, creamy white smooth and slippery. It is oval shaped with a rich nut-like flavor. Flavors well cookies, rolls, breads and candies. "Linga" in Pilipino.

SHAPE - to form into desired patterns with or without the aid of a tool such as cookie cutters, knives,etc.

SHEET COOKIES - a sponge or butter cake baked into sheet which is cut into bars or squares and triangles,etc., such as cookie bars and brownies.

SHORT CAKE - a crisp, light biscuit served with fruit, whipped cream etc. as a dessert.

SHORTENING - fat used in baked goods to make them crisp and flaky.

SIFT - to pass through a sieve, to separate the coarse from the fine particles.

SYRUP - any thick sweet liquid; specifically, a solution made by boiling sugar with water and often times with fruit juices and artificial flavorings.

SOUR MILK - milk soured naturally by the action of lactic acid bacteria or by the addition of vinegar or lemon juice. (1 tbsp. lemon juice to a cup of whole milk).

SOUR DOUGH - fermented dough saved from one baking to be used in the next thus avoiding the need for fresh yeast.

SPONGE CAKE - a light, porous type of cake made of flour, beaten eggs, sugar, etc., but no shortening.

STALE - loss of freshness in baked goods after long storage with corresponding changes in their starch molecules.

STARCH - a white powdery, tasteless, odorless food substance found in cereals and root crops which is chemically a complex carbohydrate.

STIR - to mix food materials with a circular motion to thoroughly blend and secure a uniform consistency.

STREUSEL - a popular German dessert made of a mixture of flour, butter, spices, sugar and ground almonds spread on yeast leavened doughs and baked.

STRUDEL - a kind of pastry made of a very thin sheet of dough filled with apples, cheeses, cherries, etc., then rolled.

SUET - the hard white crumbly fat deposits in the kidneys and loins of cattle and sheep used in cooking and in making tallow.

SUGAR - a sweet usually crystalline substance, extracted chiefly from beets and sugar cane used as food and sweetening agent.

SWEET DOUGH - yeast leavened product which is much richer in shortening, milk, eggs and sugar than the lean type dough.

TALLOW - the hard coarse fat from cows, sheep, etc., used in making soap, candles, margarine, etc.

TART - a small shell of pastry filled with jam, jellies, etc.

TURN OVER - a tart or a small pie made by folding one half of a circular crust back over the filling and other half.

WAFER - a thin, crisp cracker or cake.

WAFFLE - a batter cake cooked in a waffle iron. It is crispier than a pancake.

WELSH RABBIT - a dish of melted cheese often mixed with beer served on crackers or toast.

WHEAT - a staple cereal of several thousand varieties which is primarily used in the manufacture of flour, macaroni and other pastas.

YEAST - a unicellular plant that produce carbon dioxide when mixed with sugar and starch under favorable conditions.

Composition of Baked Foods in 100 Grams Edible Portion (E.D.) in Household Measures
Adopted From the Food Composition Table; FNRC, NIST, NSDB, Manila. 1968 Edition

FOOD AND DESCRIPTION	ENGLISH NAME	E.P.	MOISTURE	FOOD ENERGY	PROTEIN	FAT	TOTAL CARBOHYDRATE	FIBER	ASH		P		NA	K	VIT.A VALUE	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID
		%	%	Cal.	GM	GM	GM	GM	GM	MG	MG	MG	MG	MG	I.U.	MG	MG	MG	MG
Apa, 100 gm.....	Wafer	100	3.3	388	5.4	0.5	90.4	...	0.4	33	52	2.0	..	..	..	.11	.09	0.9	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
5 pcs.,@ 1½cm.,diam..				78	1.1	0.1	18.1	...	0.1	7	10	0.4	..	..	..	.02	.02	0.2	...
" x 1½ cm.,20 gm.																			
" (Wafer)100 gm..	"	100	2.4	505	4.6	23.2	69.4	...	0.4	36	55	1.9	..	..	..	.02	.10	1.7	...
No. of analyses		...	4		4	4			4	4	4	4	..	..	..	4	4	4	...
4 pcs., @ 5 cm.sq.,				101	0.9	4.6	13.9	...	0.1	7	11	0.4	..	..	..	Tr.	.02	0.3	...
20 gm.																			
Bitso-bitso,100 gm..	Chinese	100	22.6	372	7.4	13.6	55.0	...	1.4	39	79	3.6	..	..	..	.10	.10	1.9	...
No. of analyses	bakery	...	3		3	3		...	3	3	3	3	..	..	..	3	3	3	
1 pc.,13 x 5 cm.,	product			205	4.1	7.5	30.2	...	0.8	21	43	2.0	..	..	..	.06	.06	1.0	...
55 gm.																			
Biskotso,100 gm. .	Toasted	100	5.4	413	9.3	7.8	76.3	...	1.2	44	92	3.1	..	..	..	.17	.14	3.3	...
No. of analyses	bread	...	3		3	3			3	3	3	3				3	3	3	...
2 pcs.@ 8x7x1½ cm				124	2.8	2.3	22.9	...	0.4	13	28	0.9	..	..	..	.05	.04	1.0	...
30 gm.																			
Biskuwit, "Gem",100 gm	"Gem"	100	5.3	423	11.0	9.8	72.8	...	1.1	61	109	3.6	..	..	..	.10	.31	2.4	...
No. of analyses	biscuit	...	3		3				3	3	3	3				3	3	3	...
20 pcs.@ 2½ cm.diam.				169	4.4	3.9	29.1	...	0.4	24	44	1.4	..	..	..	.04	.12	1.0	...
x 1 cm. thick,																			
40 gm.																			

Krakers, 100 gm. ...	Crackers	100	2.7	481	7.5	19.4	69.0	...	1.4	36	54	2.3	..	..	..	.16	.10	3.6	...
No. of analyses		..	3		2	3			3	3	3	3				3	3	3	
4 pcs.@ 43/4x4 3/4 x ½ cm.,15 gm.				72	1.1	2.9	10.4	...	0.2	5	8	0.4	..	..	..	.02	.02	0.5	...
" maalat,100 gm.	Salted"	100	3.2	440	10.2	12.3	72.0	...	2.3	29	94	5.1	..	..	..	.14	.29	4.9	...
No.of analyses		...	3		3	3			3	3	3	2				3	3	3	...
4 pcs.@ 4 3/4x4 3/4 x ½ cm.,15 gm.				66	1.5	1.8	10.8	...	0.3	4	14	0.8	..	..	..	.02	.04	0.7	...
Kukis,sari-sari,100	gm.Assorted cookies	100	2.2	445	5.7	11.5	79.6	...	1.0	25	96	3.3	..	..	..	.33	.27	4.1	...
No. of analyses		...	9		.9	.9		...	9	9	9	9	..			9	9	9	
5 pcs. @ 4½ cm., 20 gm.				89	1.1	2.3	15.9	...	0.2	5	19	0.7	..	..	..	.07	.05	0.8	...
" araro, 100 gm.	Arrowroot "	100	5.8	416	1.1	8.4	84.0	...	0.7	27	83	3.5	..	..	..	.02	.02	0.3	...
No. of analyses		...	4		3	4			4	4	4	4	..	..	..	4	3	3	
3 pcs. @ 3½ cm.diam 1 cm. thick; 20 gm.				83	0.2	1.7	16.8	...	0.1	5	17	0.7	..	..	..	Tr.	Tr.	0.1	...
" may mantikilya,	Butter"																		
100 gm.		100	1.0	506	8.3	23.1	66.1	...	1.5	121	213	2.3	..	..	..	.14	.29	1.6	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
5 pcs.@ 5½ x 2½ cm. 25 gm.				126	2.1	5.8	16.5	...	0.4	30	53	0.6	..	..	..	.04	.07	0.4	...
" pili,100 gm.	Mixed nut "	100	1.5	532	6.6	28.3	62.6	...	1.0	122	111	2.4	..	..	..	.16	.27	0.6	...
No. of analyses		...	3		3	3			3	2	3	3				2	3	2	
5 pcs. @ 5½ x ½ cm. 30 gm.				160	2.0	8.5	18.8	...	0.3	37	33	0.7	..	..	..	.05	.08	0.2	...
Donat, 100 gm.	Doughnut	100	20.9	391	7.6	15.6	55.0	...	0.9	51	67	2.3	..	..	..	.19	.09	2.0	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 9 x 3 cm., 100 gm.				391	7.6	15.6	55.0	...	0.9	51	67	2.3	..	..	..	,19	.09	2.0	...
Empanada, 100 gm. ...	Meat pie	100	19.9	460	9.2	28.7	41.1	...	1.1	36	92	5.1	..	..	..	.36	.15	3.1	...
No. of analyses,		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 7 x 11½ x ¾				276	5.5	17.2	24.7	...	0.7	22	55	3.1	..	..	..	.22	.09	1.9	...

FOOD AND DESCRIPTION	ENGLISH NAME	E.P	Moisture	Food Energy	Protein	FAT	Total Carbohydrate	Fiber	ASH	CA	P	Fe	NA	K	Vit.A Value	Thiamine	Riboflavin	Niacin	Ascorbic Acid
CEREAL PRODUCTS Continued		%	%	Cal.	GM	GM	GM	GM	GM	MG	MG	MG	MG	MG	I.U.	MG	MG	MG	MG
Ensaymada, 100 gm.	Sweet roll	100	21.9	335	8.4	4.9	64.3	...	0.5	24	63	3.1	...	...	...	.16	.16	2.6	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 11½ x 3/4 cm., 85 gm.				285	7.1	4.2	54.7	...	0.4	20	54	2.6	...	...	...	.14	.12	2.2	...
Galyetas patatas, 100 gm.	Bakery product	100	3.4	423	15.0	8.0	72.8	...	0.8	55	149	4.3	...	...	...	.16	.15	2.4	...
No. of analyses		...	4		3	3			4	4	4	4	...	..	..	3	4	3	
5 pcs. @ 4 x 4 cm., 15 gm.				63	2.2	1.2	10.9	...	0.1	8	22	0.6	....	...	...	.02	.02	0.4	...
Gurgurya, 100 gm.	" "	100	3.7	525	6.7	28.1	61.2	...	0.3	18	50	4.2	...	...	...	.14	.06	2.1	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
10 pcs. @ 4 x 1 cm., 15 gm.				79	1.0	4.2	9.2	...	Tr.	3	8	0.6	...	...	...	.02	.01	0.3	...
Hopyang baboy, 100 gm.	Stuffed bakery product	100	12.5	414	5.0	13.1	69.1	3.4	0.3	32	54	2.4	...	...	...	.10	.08	2.0	...
No. of analyses		...	5		5	5		4	5	5	5	5				5	5	5	
1 pc., 7 x 4 x 2 cm., 50 gm.				207	2.5	6.6	34.6	1.7	0.2	16	27	1.2	....	...	...	.05	.04	1.0	...
" munggo, 100 gm.	" " "	100	18.5	383	6.5	12.0	62.3	1.7	0.7	25	94	6.7	...	...	...	.12	.11	1.2	...
No. of analyses		...	4		4	4		4	4	4	4	2				4	4	4	
1 pc., 5 cm. diam., 40 gm.				153	2.6	4.8	24.9	0.3	0.7	10	38	2.7	...	...	...	.05	.04	0.5	...
Mamon, 100 gm.	Plain cake	100	17.5	388	5.4	12.1	64.3	...	0.7	83	87	1.7	...	...	...	.10	.08	1.2	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 5 3/4 x 2½ cm., 15 gm.				58	0.8	1.8	9.6	...	0.1	12	13	0.3	...	...	...	.02	.01	0.2	...
" tostado, 100 gm.	Toasted cake	100	3.9	414	10.4	6.7	78.1	...	0.9	49	189	3.4	...	...	...	.14	.29	1.3	...
No. of analyses		...	4		4	4			4	4	4	4				4	4	4	...
4 pcs. @ 2 x 3 x 3 cm. 40 gm.				166	4.2	2.7	31.2	...	0.4	20	76	1.4	...	...	...	.06	.12	0.5	...

COMPOSITION OF BAKED FOODS IN 100 GRAMS EDIBLE PORTION (E.P.) AND IN HOUSEHOLD MEASURES

Food and Description	English Name	E.P.	Moisture	Food Energy	Protein	Fat	Total Carbohydrate	Fiber	Ash	Ca	P	Fe	Na	K	Vit. A value	Thiamine	Riboflavin	Niacin	Ascorbic Acid
		%	%	Cal.	gm	gm	gm	gm	gm	mg	mg	mg	mg	mg	I.U.	mg	mg	mg	mg
CEREAL PRODUCTS																			
Bilipit, 100 gm.	Bakery product	100	3.2	468	6.7	16.3	73.5	...	0.3	21	44	3.1	...	...	...	.11	.07	2.0	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 10 x 3 cm., 25 gm.				117	1.7	4.1	18.4	...	0.1	5	11	0.8	...	...	...	.03	.02	0.5	...
Bitisu, 100 gm.	Cream puff	100	35.6	293	5.4	7.5	50.9	...	0.6	60	77	1.6	...	...	...	.10	.09	0.8	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 6½ cm. diam., 3 3/4 cm. thick, 25 gm.				73	1.4	1.9	12		0.2	15	19	0.4	...	...	...	.02	.02	0.2	...
Biyanono, 100 gm.	Jolly rolls	100	21.6	326	5.3	2.8	69.9	...	0.4	49	83	2.0	...	...	...	.14	.11	1.1	...
No. of analyses		...	2		2	2			2	2	2	2				2	2	2	
1 sl., 5 x 4 cm., 30 gm.				98	1.6	0.8	21.0	...	0.1	15	25	0.6	...	...	...	.04	.03	0.3	...
Bulboron, 100 gm.	Bakery product	100	4.3	497	5.2	23.2	66.8	...	0.5	23	59	1.4	...	...	...	.20	.06	1.9	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 8 x 5 cm., 20 gm.				99	1.0	4.6	13.4	...	0.1	5	12	0.3	...	...	...	.04	.01	0.4	...
"Rolls," 100 gm.	Rolls for hotdog or hamburger)	100	24.3	322	10.2	4.4	60.4	...	0.7	27	68	3.9	...	...	...	.19	.08	3.1	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 11½ x 4 x 3 3/4 cm., 50 gm.				161	5.1	2.2	30.2	...	0.4	14	34	2.0	...	...	...	.10	.04	1.6	...
"Rolls, cinnamon," 100 gm.	Cinnamon rolls	100	16.3	419	9.1	17.7	55.9	...	1.0	55	89	2.6	...	...	...	.18	.13	1.9	...
No. of analyses		...	4		3	2			3	4	4	4				3	3	3	
1 pc., 9 x 6½ cm., 40 gm				168	3.6	7.1	22.4	...	0.4	22	36	1.0	...	...	...	.07	.05	0.8	...
"Rolls, cream-filled," 100 gm.	Cream-filled rolls	100	27.9	366	9.2	16.3	45.6	...	1.0	63	163	2.7	...	...	...	.06	.25	0.7	...
No. of analyses			3		3	2			3	3	3	3				3	3	3	
1 pc., 6 x 3 cm., 30				110	2.8	4.9	13.7	...	0.3	19	49	0.8	...	...	...	.02	.08	0.2	...

Mesapudrida, 100 gm.	Bakery product	100	5.7	384	4.8	0.8	89.4	...	0.4	27	48	1.5	...	...	...	.13	.08	2.1	...
No. of analyses		...	3		3	2			3	3	3	3				3	3	3	
1 pc., 7 1/3 x 1½ cm., 30 gm.				115	1.4	0.2	26.8	...	0.1	8	14	0.4	...	...	...	.04	.02	0.6	...
Ogoy-ogoy, 100 gm.	" "	100	3.8	442	8.3	12.4	74.3	...	1.2	33	129	2.3	...	...	...	.20	.10	3.1	...
No. of analyses		...	3			3			3	3	3	3				3	3	3	
4 pcs. @ 5 x 3½ x ½ cm., 20 gm.				88	1.7	2.5	14.9	...	0.2	7	26	0.5	...	...	...	.04	.02	0.6	...
Pan Amerikano, 100 gm.	American loaf	100	22.9	333	9.7	5.6	60.9	...	0.9	77	95	3.9	...	...	...	.20	.16	3.3	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
2 sl. @ 9 x 3 x 1 cm., 30 gm.				100	2.9	1.7	18.2	...	0.3	23	28	1.2	...	...	...	.06	.05	1.0	...
" de bonete, 100 gm.	Bread	100	23.6	323	12.3	4.5	58.4	...	1.2	40	76	3.1	...	...	...	.21	.22	3.2	...
No. of analyses		...	4		4	4			4	4	3	3				4	4	4	
1 pc., 6 cm. diam. base x 7 cm. thick, 30 gm.				97	3.7	1.4	17.5	...	0.4	12	23	0.9	...	...	...	.06	.07	1.0	...
" de coco, 100 gm.,	"	100	20.3	350	9.2	6.7	63.1	...	0.7	30	76	2.0	...	...	...	.21	.07	2.2	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 pc., 9 x 8 cm., 55 gm.				192	5.1	3.7	34.7	...	0.4	16	42	1.1	...	...	...	.12	.04	1.2	...
" de limon, 100 gm. ..	"	100	24.0	321	10.6	4.0	60.6	...	0.8	25	84	3.6	...	...	...	.18	.09	3.1	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	...
1 pc., 8 3/4 x 7½ x 5 cm., 55 gm.				177	5.8	2.2	33.3	...	0.4	14	46	2.0	...	...	...	.10	.05	1.7	...
" de sal, 100 gm. ...	"	100	24.6	320	10.1	4.5	59.8	...	1.0	24	75	3.0	...	...	...	.22	.15	3.0	...
No. of analyses			3		3	3			3	3	3	3				3	3	3	
1 pc., 7 x 5 cm. 30 gm.				96	3.0	1.4	17.9	...	0.3	7	22	0.9	...	...	...	.07	.04	0.9	...
Pasensiya, 100 gm.	Bakery product	100	4.6	397	6.9	3.4	84.6	...	0.5	39	82	2.2	...	...	...	.16	.19	1.5	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
5 pcs. @ 2½ cm. diam. 20 gm.				79	1.4	0.7	16.9	...	0.1	8	16	0.4	...	...	...	.03	.04	0.3	...

"Rolls, marshmallow", 100 gm.	Marsh-mallow roll	100	20.9	339	6.5	4.9	67.1	...	0.6	46	124	2.3	...	...	...	.11	.21	0.7	...
No. of analyses		...			3	3			3	3	3	3				3	3	3	
1 pc., 6¼ x 3 3/4 cm., 35 gm.				119	2.3	1.7	23.5	...	0.2	16	43	0.8	...	...	...	.04	.07	0.2	...
"Rolls, pineapple filled, 100 gm.	Pineapple filled roll	100	39.1	255	3.5	2.5	54.5	0.7	0.4	35	45	1.2	...	...	...	.09	.09	0.5	1
No. of analyses		...	3	3		3		3	3	3	3	3				2	2	2	3
1 pc., 10 3/4 x 4½ x 3¼ cm., 50 gm.				128	1.8	1.2	27.2	0.4	0.2	18	22	0.6	...	...	...	.04	.04	0.2	Tr.
Tinapay para sa diyabetiko, 100 gm.	Diabetic loaf	100	21.7	313	12.1	0.9	64.1	...	1.2	43	88	2.1	...	...	...	.28	.21	2.3	...
No. of analyses		...	3		3	3			3	3	3	3				3	3	3	
1 sl., 8 x 12 x 1 cm., 25 gm.				78	3.0	0.2	16.0	...	0.3	11	22	0.5	...	...	...	.07	.05	0.6	...

TABLE II

RECOMMENDED DAILY FOOD ALLOWANCES FOR FILIPINOS

Food and Nutrition Research Center

NIST, NSDB

		(1) Leafy & Yellow Vegetables		(2) Vitamin C Rich Foods		(3) Other Fruits & Vegetables		(4) Fats	Whole milk	(5) Protein-Rich Foods: Meat poultry & Fish		Eggs		Beans & Nuts(dried)		(6) Energy Foods: Cereals	Kamote & potatoes		Sugar	
		A.P gm.	E.P gm.	A.P. gm.	E.P. gm.	A.P. gm.	E.P gm.	A.P. gm.	E.P. gm.	A.P. gm.	E.P. gm.	A.P. No.	E.P gm.	A.P. gm.	E.P.	A.P. gm.	A.P. gm.	E.P. gm.	A.P. gm.	E.P
Reference Man	25 yrs.	110	70	65	50	165	110	40	-	160	100	1	10	20		430	80	65	40	
	30 - 49 "	110	70	65	50	165	110	35	-	160	100	1	10	20		420	80	65	35	
	50 - 69 "	110	70	65	50	150	100	30	-	175	110	1	10	20		380	60	50	35	
	70 +	110	70	65	50	150	100	25	200	175	110	1	40	-		290	60	50	30	
Reference Woman	25 "	110	70	65	50	150	100	30	-	160	100	1/2	20	20		310	50	40	30	
	30 - 49 "	110	70	65	50	150	100	25	-	160	100	1/4	10	20		300	50	40	25	
	50 - 69 "	110	70	65	50	150	100	20	-	175	110	1/4	10	15		265	50	40	20	
	70 +	110	70	65	50	150	100	15	150	175	110	1	40	-		200	50	40	20	
Pregnant		110	70	130	100	225	150	30	150	190	120	1/2	20	20		360	60	50	30	
Nursing		155	100	130	100	225	150	40	200	240	150	1	40	20		430	120	100	45	
Infants	6 - 12 mos.	25	15	40	30	30	20	10	480	30	20	1/4	10	10		100		20	25	
Children	1 - 3 yrs.	40	45	40	30	50	35	25	240	65	40	1/4	10	10		180	60	50	20	
	4 - 6 "	45	30	40	30	75	50	25	240	80	50	1/4	10	10		240	60	50	25	
	7 - 9 "	45	30	65	50	150	100	30	150	95	60	1/4	10	10		310	60	50	25	
	10 - 12 "	80	50	65	50	150	100	35	-	160	100	1/4	10	15		400	120	100	25	
Boys	13 - 15 "	110	70	130	100	150	100	45	-	190	120	1/2	20	30		470	120	100	35	
	16 - 19 "																			
Girls	13 - 15 "	110	70	130	100	150	100	30	-	190	120	1/2	20	20		380	120	100	30	
	16 - 19 "	110	70	100	75	165	110	30		175	110	1/2	20	20		350	60	50	30	
GM Per capita		85	55	72	55	135	90	30	90	139	87		13	16		325	73	60	28	

A.P. - As purchased
E.P. - Edible portion

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RECOMMENDED DAILY ALLOWANCES FOR SPECIFIC NUTRIENTS

Food and Nutrition Research Center
NIST, NSDB

		Body WT Kg	Energy Kcal	Protein gm	Calcium gm	Iron mg	Vitamin A Activity I.U	Thiamin mg	Ribo-flavin mg	Niacin Equivalent mg	Ascorbic Acid mg
Reference	Man 25 yrs.	56	2500	63	0.5	8	5000	1.3	1.3	16	75
	30 - 49 "	56	2400	63	0.5	8	5000	1.2	1.2	16	75
	50 - 69 "	56	2200	63	0.5	8	5000	1.1	1.1	15	75
	70 + "	56	1950	63	0.5	8	5000	1.0	1.0	13	75
Reference	Women 25 yrs.	49	1900	55	0.5	18	5000	1.0	1.0	13	70
	30 - 49 "	49	1800	55	0.5	18	5000	0.9	0.9	13	70
	50 - 69 "	49	1600	55	0.5	7	5000	0.8	0.8	13	70
	70 + "	49	1450	55	0.5	7	5000	0.7	0.7	13	70
Pregnant			2300	65	1.0	18*	5000	1.2	1.2	15	100
Nursing			2900	75	1.0	18*	7000	1.5	1.5	19	150
Infants	6 - 12 mos.	9	950	25	0.6	7	1500	0.5	0.5	6	30
Children	1 - 3 yrs.	12	1300	26	0.5	7	2000	0.7	0.7	9	35
	4 - 6 "	17	1600	32	0.5	7	2500	0.8	0.8	11	50
	7 - 9 "	25	1900	38	0.5	7	3000	1.0	1.0	13	60
	10 - 12 "	33	2300	45	0.7	7	4000	1.2	1.2	15	75
Boys	13 - 15 "	44	2800	60	0.7	11	5000	1.4	1.4	18	90
	16 - 19 "	55	2800	65	0.6	11	5000	1.4	1.4	18	100
Girls	13 - 15 "	44	2300	60	0.7	13	5000	1.2	1.2	15	80
	16 - 19 "	48	2100	60	0.6	13	5000	1.1	1.1	14	80

* It is assumed that the woman has adequate stores prior to this condition

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